Connah's Quay Low Carbon Power

Environmental Statement Volume IV
Appendix 20-E: Greenhouse Gas Reduction Strategy

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Executive Summary

This Greenhouse Gas (GHG) Reduction Strategy has been developed for the Proposed Development to meet the Overarching National Policy Statement for Energy (NPS-EN1) requirement for a GHG reduction strategy to accompany Development Consent Order (DCO) submission application.

This document sets out how the GHG emissions associated with the Proposed Development should be managed and reduced, in accordance with NPS-EN1 requirements.

Whilst NPS-EN1 (paragraph 5.3.7) requires a GHG Reduction Strategy to consider "*the creation and preservation of carbon stores and sinks including through woodland creation, hedgerow creation and restoration, peatland restoration and through other natural habitats*", this Strategy has been prepared in the absence of data to evaluate the emissions attributed to anticipated land use change. The **Outline Landscape and Ecological Management Plan (LEMP)** (**EN010166/APP/6.9**) addresses this EN-1 requirement in detail and should be read alongside this Strategy. For example, the **Outline LEMP** (**EN010166/APP/6.9**) includes initiatives for the habitat creation and the preservation of carbon stores and sinks, such as woodland and hedgerows.

This document should be read in conjunction with **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**) of the **Environmental Statement** (**ES**). The GHG calculations presented within this GHG Reduction Strategy are also presented in the Climate Change chapter. Refer to the chapter for more detail on the calculation methodology and assessment of GHG impacts.

The GHG management process described in this document is structured in accordance with Publicly Available Specification (PAS) 2080:2023 Carbon Management in Buildings and Infrastructure, which represents best practice for carbon management in the built environment. The GHG management process includes the following key steps:

- identifying governance, roles and responsibilities in terms of GHG management;
- developing a GHG baseline and identifying GHG hotspots;
- identifying and prioritising GHG reduction opportunities, with the aid of a Decarbonisation Tracker; and
- reviewing GHG reduction alignment with relevant GHG reduction targets.

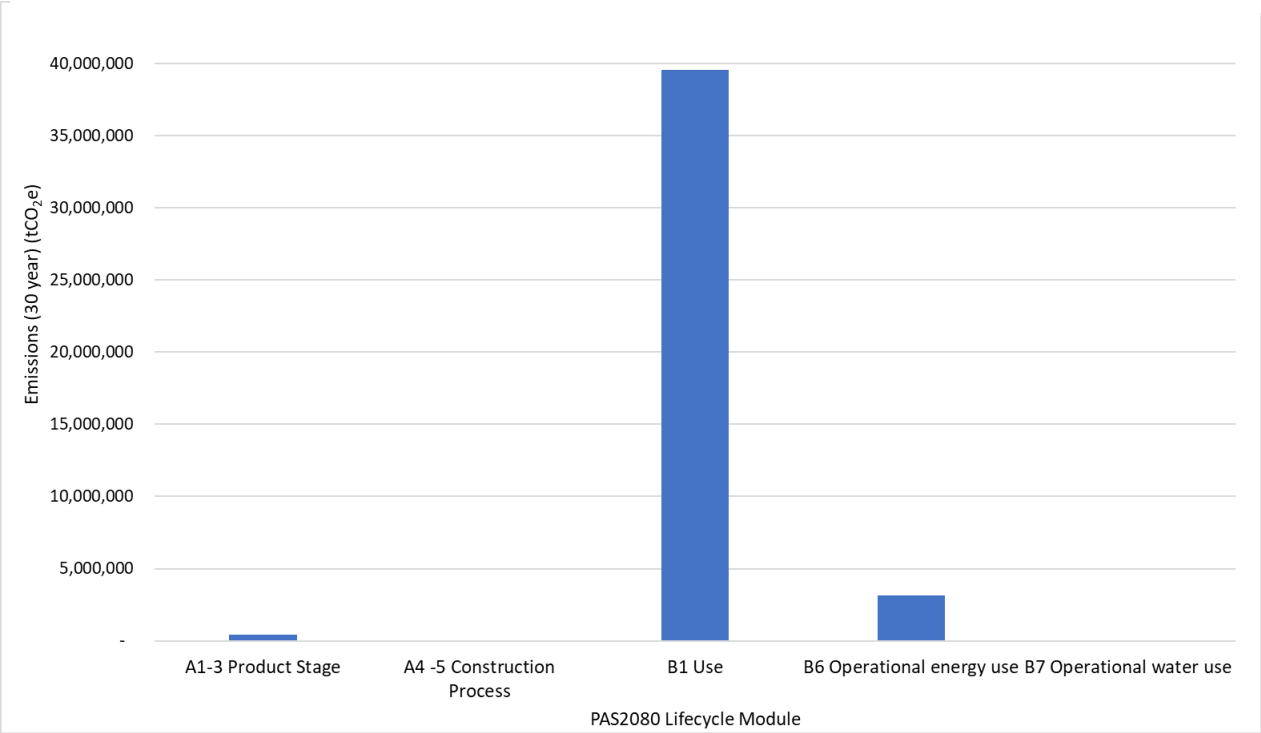
The total baseline GHG emissions for the Proposed Development are estimated to be 43,122,285 tCO_2e. Of this, 92% is attributable to the use stage (PAS 2080 module B1) (i.e., fuel usage on-site, raw material demand, etc), 7% is attributable to operational energy use (B6) (i.e., grid electricity), and 1% is attributable to product stage emissions (A1-3) (i.e., embodied carbon in materials and the transport of materials to the Order limits). Note that the term 'GHG baseline' in this document is from PAS 2080 best practice and refers to a basis against which GHG reductions can be assessed and may diverge from the terminology used in the **ES**. The GHG baseline is based on current design at outline design stage. This GHG Reduction Strategy sets out how

GHG emissions should be managed as the project progresses to detailed design and construction.

Operational use of the Proposed Development has been outlined as a key GHG hotspot. Of these emissions, ~89% can be attributed to the combustion of fuel on-site (i.e., natural gas). Understanding GHG hotspots can inform carbon reduction opportunities.

The GHG baseline is summarised graphically in **Plate 1**, broken down per PAS 2080 lifecycle module. More detail on what is included under each lifecycle module is provided in **Section 5** of this document.

Plate 1: Lifecycle GHG emissions



Potential carbon reduction opportunities have been grouped into the following categories:

- Strategy and Governance;
- Innovative Design;
- Lower Carbon Products; and
- Lean Construction Techniques.

Potential carbon reduction opportunities identified during a collaborative workshop with Uniper and the design teams are listed in the Decarbonisation Tracker in **Annex A: Decarbonisation Tracker.** This includes consideration of nature-based solutions where applicable, as per NPS EN-1 requirements. GHG reduction opportunities identified are not committed to through the DCO but their feasibility will be explored further as the Proposed Development progresses.

Although construction and maintenance of the Proposed Development would result in GHG emissions, when considered in the context of the wider UK energy policy, the Proposed Development itself contributes to low carbon energy and will facilitate the

connection of new renewable energy generation to the UK electricity grid. The Proposed Development is therefore a key part of UK policy to decarbonise the electricity grid and transition to net zero by 2050.

This GHG Reduction Strategy is structured as follows, in line with PAS 2080 best practice for carbon management:

- **Section 1**: Introduction to the Proposed Development and purpose of this GHG Reduction Strategy;
- **Section 2**: Explanation of benefits of this GHG Reduction Strategy in terms of NPS EN-1 requirements and wider decarbonisation commitments;
- **Section 3**: Sets out the GHG management approach for the Proposed Development, including objectives, coverage and GHG management process;
- **Section 4**: Highlights key roles and responsibilities for GHG management, referring to the **Construction Environmental Management Plan**(s) (**CEMP**(s));
- **Section 5**: Presents the GHG baseline and GHG hotspots to inform key aspects for GHG reduction;
- **Section 6**: Sets out the process to identify and prioritise decarbonisation opportunities, referring to the identified opportunities for the Proposed Development listed in the Decarbonisation Tracker in **Annex A: Decarbonisation Tracker** ;
- **Section 7**: Describes the UK (including Wales) and Uniper's organisational decarbonisation targets which are applicable to the GHG reduction of the Proposed Project;
- **Section 8**: Describes how GHG management should be implemented;
- **Section 9**: Describes how GHG management activities should be reviewed to facilitate their successful implementation; and
- **Section 10**: Describes how communication and training within the project team should facilitate successful implementation of GHG reduction activities.

1. Introduction

1.1 The Proposed Development

1.1.1 Uniper (hereafter referred to as 'The Applicant') is seeking a Development Consent Order (DCO) for the construction, operation and maintenance, and decommissioning of a proposed low carbon Combined Cycle Gas Turbine (CCGT) Generating Plant fitted with Carbon Capture Plant (CCP) ('the Proposed Development') on land at, and in the vicinity of, the existing Connah's Quay Power Station (Kelsterton Road, Connah's Quay, Flintshire, CH6 5SJ), North Wales (the 'Order limits'). This would be comprised of up to two 'Trains', with a combined net electrical output capacity of up to 1,380 MWe and would be fueled by natural gas and requires electricity, cooling water, mains water, data/telecommunications, and CO_2 transport and storage (T&S) connections. It will be designed to operate with a post-combustion CCP installed and would generally be operated as a dispatchable low carbon generating station.

1.1.2 The Proposed Development is proposed to make use of CO_2 transport and storage networks owned and operated by Liverpool Bay CCS Limited, currently under development as part of the HyNet Carbon Dioxide Pipeline project (referred to as the 'HyNet CO_2 Pipeline Project'), which would transport CO_2 captured from existing and new industries in North Wales and North West England, as well as from new hydrogen production facilities that are proposed as part of HyNet North West Project. The captured CO_2 would be stored in depleted offshore gas reservoirs in Liverpool Bay.

1.1.3 The Proposed Development would play a key role in facilitating the connection of low carbon electricity to the UK electricity grid when other renewable generation sources are unavailable. The Proposed Development is therefore a key part of UK policy to decarbonise the electricity grid and transition to net zero by 2050.

1.2 Development Background

1.2.1 This Greenhouse Gas (GHG) Reduction Strategy has been developed for the Proposed Development in accordance with National Policy Statement (NPS) EN-1 (Ref 1) as part of the Development Consent Order (DCO) application.

1.2.2 This GHG Reduction Strategy covers the Proposed Development as described in **Chapter 4: The Proposed Development (EN010166/APP/6.2.4),** and should be read in conjunction with **Chapter 20: Climate Change (EN010166/APP/6.2.20)**.

1.2.3 This GHG Reduction Strategy has been prepared following Publicly Available Specification (PAS) 2080:2023 – Carbon Management in Buildings and Infrastructure (Ref 2), the foremost industry-wide standard for carbon management.

1.2.4 Given the national commitment to Net Zero GHG emissions by 2050, the carbon impact of infrastructure projects has become a vital topic for

consideration and management throughout project optioneering, design and delivery stages.

1.2.5 This GHG Reduction Strategy provides Uniper with a route map, setting out how the GHG emissions associated with the Proposed Development should be managed and reduced. Key national and local legislation, policies and commitments requiring GHG emission reductions over the lifetime of the Proposed Development have informed the development of this GHG Reduction Strategy (see **Chapter 7: Planning Policy** (**EN010166/APP/6.2.7**)).

1.2.6 Throughout this GHG Reduction Strategy, the term 'GHG' includes the seven GHG gases outlined within the United Nations Framework Convention on Climate Change's (UNFCCC's) reporting requirements (Ref 3). Emissions of GHGs are expressed in tonnes of carbon dioxide equivalent (tCO_2e), i.e. the mass of CO_2 resulting in equivalent global warming potential.

1.2.7 This GHG Reduction Strategy presents the overarching GHG management principles and foundational GHG management requirements to reduce and manage GHG emissions related to the project. This process helps maintain consistency, clarity, and collaboration, as well as a clear audit trail of applying best practices across the Proposed Development lifecycle. This GHG Reduction Strategy helps inform actions that should be undertaken at each relevant work stage.

1.2.8 This GHG Reduction Strategy should be used in conjunction with the Decarbonisation Tracker in **Annex A: Decarbonisation Tracker** which contains a log of carbon reduction opportunities identified for the Proposed Development. These are potential GHG reduction opportunities that have been identified for further consideration and are not committed to through the **Draft DCO** (**EN010166/APP/3.1**).

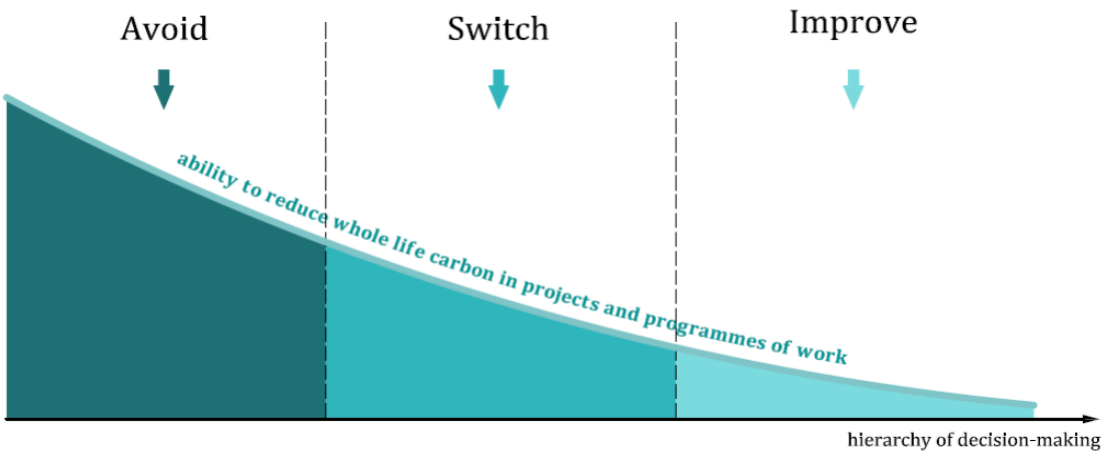
2. Benefits of this GHG Reduction Strategy

2.1.1 This GHG Reduction Strategy has been produced to meet the NPS EN-1 requirement for a GHG reduction strategy to accompany the DCO application for the Proposed Development.

2.1.2 This GHG Reduction Strategy presents how undertaker should effectively manage GHG emissions throughout the Proposed Development's lifecycle in line with the UK's, and more specifically Wales', net zero goals. The strategy also aligns to Uniper's target to be completely carbon-neutral by 2040 and for its installed power generating capacity to be more than 80% zero-carbon by 2030. This strategy encourages early consideration of GHG emissions and creation of appropriate governance structures and processes. Considering the GHG impacts associated with project early in the design process is critical to minimising associated GHG emissions and realising the greatest benefits.

2.1.3 **Plate 2**, from PAS 2080 (Ref 2), demonstrates how there is generally a decrease in GHG reduction potential over a project's lifecycle.

Plate 2: PAS 2080:2023 Carbon Reduction Hierarchy (Ref 2)



2.1.4 **Plate 2**: PAS 2080:2023 Carbon Reduction Hierarchy (Ref 2) demonstrates that the most significant GHG savings are achievable during the early stages of a project, as it is possible to implement more fundamental and transformative measures. For example, some cases include avoiding the Proposed Development or project components altogether, and switching mode, method or material.

2.1.5 As a project moves beyond the design stage to the delivery and operation phases, reducing GHG emissions is possible by making processes more efficient. However, while there is less scope for high-impact reduction measures at the later stages, it is still important to consider reduction measures across all lifecycle stages. In addition to mitigating climate change, effective GHG management can also provide the following benefits:

- increasing client, designer and contractor collaboration;

- unlocking innovation and driving better solutions;
- assisting commercial goals through cost savings, realised by increased efficiency, design and procurement choices;
- meeting stakeholder and consumer aspirations through more ambitious climate and sustainability action; and
- supporting wider sustainability goals, e.g., resource efficiency and waste reduction, biodiversity protection and training opportunities for staff.

2.1.6 Consistency and continuity across the project lifecycle are crucial for effective GHG management in any project. By implementing proactive systems thinking and a whole-life approach early on, Uniper can integrate GHG management throughout the Proposed Development, resulting in more efficient GHG mitigation and improved sustainability outcomes.

3. GHG Management Approach

3.1 GHG Reduction Strategy Objectives

3.1.1 This document describes how GHG emissions associated with the Proposed Development should be managed, in accordance with NPS EN-1 (Ref 1), which notes:

"Steps taken to minimise and offset emissions should be set out in a GHG Reduction Strategy, secured under the Development Consent Order" (paragraph 5.3.7, NPS EN-1).

3.1.2 Section 8.5 of **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**) outlines embedded GHG mitigation measures secured under the DCO and integrated into the Proposed Development's design; the GHG baseline outlined within Section 5 of this Strategy accounts for the implementation of these measures. However, this Strategy describes the process by which potential GHG reduction opportunities will be identified, prioritised, and, if appropriated, implemented. The objectives of this GHG Reduction Strategy are to:

- describe indicative governance, roles and responsibilities associated with GHG management;
- provide, as far as practicable, a baseline assessment of the GHG impact of the Proposed Development;
- facilitate early identification of potential GHG reduction opportunities;
- describe the Proposed Development in the context of National Grid's GHG reduction target; and
- describe the indicative process for ongoing GHG management, monitoring, reporting and review.

3.2 GHG Reduction Strategy Coverage

3.2.1 The scope and boundary of this GHG Reduction Strategy has been defined in line with best practice principles set out in the RICS Whole Life Carbon Assessment guidelines (Ref 4) and PAS 2080:2023 Carbon Management in Buildings and Infrastructure guidelines (Ref 2). These principles can be applied across all sectors.

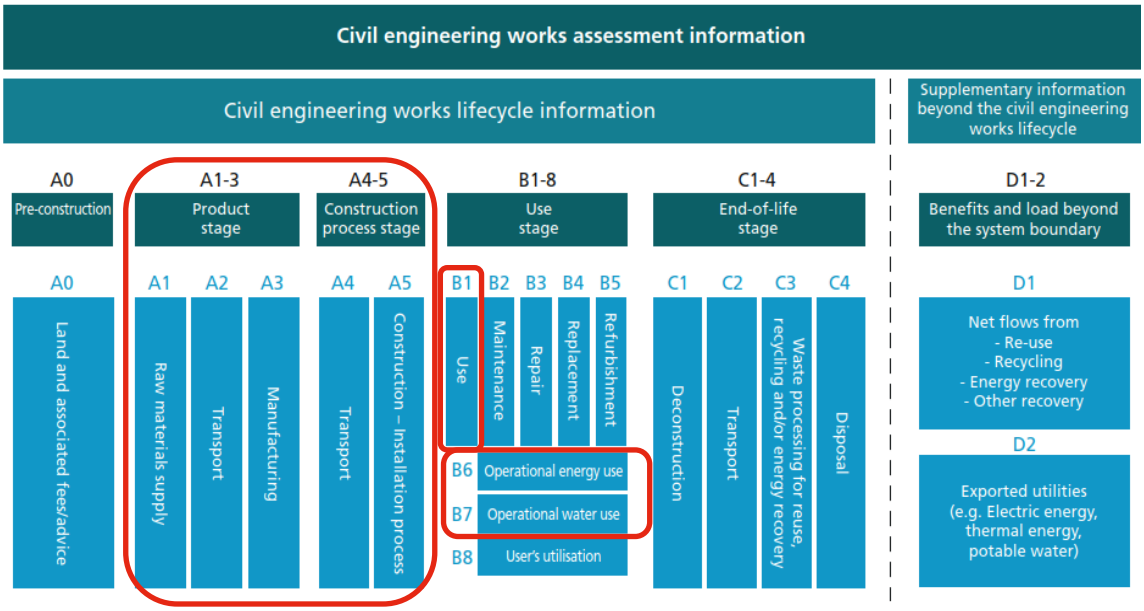
3.2.2 The RICS Whole Life Carbon Assessment (Ref 4) guidelines stipulate that as a minimum, whole life carbon assessments should account for all components relating to the Proposed Development during all life stages. As such, the PAS 2080 lifecycle modules included in this GHG Reduction Strategy have been selected based on relevance and materiality as informed by industry best practice and constraints in the practical availability of data.

3.2.3 The timescale and boundary of the GHG Reduction Strategy includes the GHG-emitting activities associated with the following PAS 2080 lifecycle modules, as illustrated in **Plate 3**:

- Product Stage (A1-3);
- Transport (A4);

- Construction – Installation Process (A5);
- Maintenance and Repair (B2-3); and
- Operational Energy Use (B6).

Plate 3: PAS2080 lifecycle modules



3.2.4 Due to the unpredictability of the decommissioning lifecycle stage, the 'End-of-life' lifecycle stage has been scoped out of this GHG Reduction Strategy, reflecting that the decommissioning environment and associated practices of the future may vary considerably to those observed currently. However, it is recognised that GHG reduction opportunities adopted during the design stage may reduce emissions associated with the decommissioning stage (e.g., reusability or recyclability of materials).

3.2.5 Sources of GHG emissions associated with the whole lifecycle of the Proposed Development are listed in **Table 1**. The GHG emissions calculations focus on quantifiable key emissions sources ('hotspots'). The availability of accurate activity data determines quantifiable emissions.

Table 1: GHG emission sources considered within the scope of the GHG Reduction Strategy

PAS 2080 Lifecycle Stage		Emission Source(s)	In Scope of This GHG Reduction Strategy?
Before Use Stage	Preconstruction Stage (A0)	Energy use and transportation demands from office-based tasks.	Scoped out as insufficient data to quantify and unlikely to be material.

PAS 2080 Lifecycle Stage		Emission Source(s)	In Scope of This GHG Reduction Strategy?
	Product Stage: Raw materials supply, transport and manufacture (A1 – A3)	Fuel consumption and energy use during extraction, transportation and manufacturing of materials to be used in the Proposed Development.	In scope
	Construction Process stage: Transport to works site; construction process (A4 – A5)	Land Clearance: Loss of biological capacity to absorb and process carbon stock loss.	In Scope
		Fuel consumption used to transport plant and machinery to site.	
		Fuel consumption used in transporting construction staff to site.	
		Energy (electricity, fuel, etc.) consumption of plant, machinery, vehicles and generators etc. on site.	
		Energy consumption required for transport and disposal of waste (including construction material waste and spoil).	
Use Stage	Use (B1)	Emissions emitted directly from the use of installed products and materials. Includes unavailability of the T&S system.	In Scope

PAS 2080 Lifecycle Stage		Emission Source(s)	In Scope of This GHG Reduction Strategy?
	Maintenance, repair, replacement, refurbishment (B2 – B5)	Emissions associated with repair and replacement of assets during the Proposed Development's lifetime (including embodied carbon in materials, energy required for operation of machinery, and transport).	Scoped out as the reference operational period considered for this GHG Reduction Strategy is 30 years, in accordance with asset lifespans. No replacement is anticipated to occur before 30 years.
	Operational energy use (B6)	Emissions associated with operation of Infrastructure associated with the Proposed Development, such as lighting.	In Scope
		Emissions associated with transmission losses.	Scoped out as this is not directly controlled by the Applicant and is a matter for the wider UK electricity network.
	Users' utilisation of Infrastructure (B8)	N/A	Scoped out as not applicable to the Proposed Development's context.
End of Life Stage	Deconstruction, transport, waste processing for recovery and disposal (C1 – 4)	Emissions associated with materials removal and disposal.	Scoped out due to unpredictability of the decommissioning stage at this point in time.
Benefits and load beyond system boundary	Net flows from disposal methods used, and exported utilities (D1 – 2)	Emissions associated with carbon flows beyond project boundary. Includes venting and	Scoped out as insufficient information to quantify at this point in time.

PAS 2080 Lifecycle Stage		Emission Source(s)	In Scope of This GHG Reduction Strategy?
		leakage from T&S system.	

3.3 GHG Management Process

3.3.1 This section describes the key elements of the GHG Reduction Strategy, which provide a framework for effectively integrating project-specific GHG reduction priorities across the project lifecycle.

3.3.2 The key elements of the GHG management process include:

- developing a GHG Baseline – based on preliminary design information available at time of GHG Reduction Strategy preparation, this provides expected whole-life GHG emissions. For the purposes of this GHG Reduction Strategy, the baseline (in tCO_2e) already accounts for the GHG reduction measures presented at the Proposed Development concept phase;
- holding a GHG Workshop – held in collaboration with Uniper, the design team, and buildability advisors to identify, review, assess and prioritise GHG reduction opportunities;
- producing a Decarbonisation Tracker – developed to record GHG reduction opportunities identified during discussions with the Proposed Development team, and to support implementation of the GHG reduction targets by assigning responsibility. This is inclusive of a framework mechanism that can be used to track progress throughout the Proposed Development lifecycle; and
- developing a GHG Reduction Strategy – this document, developed to support the delivery of GHG reduction opportunities across the Proposed Development lifecycle.

4. Governance, Roles, and Responsibilities

4.1.1 The final Construction Environmental Management Plan(s) (CEMP(s)) shall support the implementation of the measures presented in this GHG Management Plan.

4.1.2 As part of the monitoring process, the Engineering, Procurement and Construction Contractor(s) shall allocate a designated Environmental Site Officer (ESO) who would be present on-site throughout the construction process and at the commencement of new construction activities.

4.1.3 In particular, the ESO(s) would observe activities within the Order limits and report any deviations from the final CEMP in a logbook, along with the action taken and general conditions at the time. The Applicant would be informed of such deviations as soon as possible following identification.

4.1.4 During construction of the Proposed Development, the ESO(s) would:

- conduct daily walkover surveys to ensure all requirements of the final CEMP are being met. Action from these surveys should be documented on an Environmental Action Schedule, discussed with the Site Foreman for programming requirements and issued weekly for actioning;
- arrange regular formal inspections to ensure the requirements of the final CEMP are being met. After completion of construction activities, the ESO(s) should conduct a final review; and
- retain records of environmental monitoring and implementation of the final CEMP. This should allow provision of evidence that the final CEMP is being implemented effectively.

5. GHG Baseline

5.1 Assessment Approach

5.1.1 PAS 2080 notes that depending on the lifecycle stage at which quantification is made, either part or all the quantification may be based on predictive data (i.e., something forecasted or planned to occur) rather than actual activity data (e.g., recorded consumption amounts).

5.1.2 The GHG baseline for this GHG Reduction Strategy provides expected project lifecycle emissions in tonnes of carbon dioxide equivalent (tCO_2e). This baseline has been developed based on predictive data and estimates.

5.1.3 The GHG baseline is presented to assist National Grid in understanding which stages or activities associated with the Proposed Development are key sources of GHG emissions and to provide a basis against which GHG reduction measures and future GHG quantifications can be compared.

5.1.4 GHG emissions across the various lifecycle stages were calculated following the GHG Protocol's method, represented in the following equation:

Activity Data x GHG Emissions Factor = GHG emissions value

5.1.5 Activity data refers to data collected which represents activities which result in GHG emissions, such as volume of diesel consumed, kWh of electricity consumed etc. Activity data was requested from the Proposed Development team in a Request for Information (RFI) and follow up discussions. Where the activity data is unavailable, proxy data from similar projects and fundamental assumptions were used.

5.1.6 Emission factors refer to factors which convert activity data into corresponding GHG emissions. The activity data obtained, and emission factors used are detailed in **Table 1**.

5.2 GHG Calculation Method and Assumptions

5.2.1 Project data and information, industry benchmarks and proxies, and professional judgement have been used to estimate the Proposed Development's capital and operational GHG baseline. Calculations were undertaken using a bespoke GHG accounting tool developed by AECOM. **Table 2** indicates how forecast GHG emissions have been determined per PAS 2080 lifecycle stage (see **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**) for more detail).

5.2.2 In accordance with **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**) and asset lifespans, a reference operational period of 30 years is assumed.

Table 2: GHG Calculation Methods and Assumptions

PAS 2080 Lifecycle Stage		GHG Calculation Method and Assumptions
Before Use Stage	Preconstruction stage (A0)	Represents the preliminary studies and works such as strategy and brief development, design efforts, Environmental Impact Assessment, and cost planning. It has been assumed to be minimal and therefore not a material contributor to the overall footprint.
	Product Stage (A1-3)	The main construction materials considered for this assessment included: aggregates for earthworks and backfill, concrete for foundations and piles, steel for structural reinforcement and pipework, asphalt for roads, and titanium for heat exchangers (seawater cooling circuit). Estimated material quantities were obtained from an RFI and follow up discussions with the design team. Emission factors were obtained from the Department for Energy Security and Net Zero (DESNZ) 2024 (Ref 1), the Inventory of Carbon and Energy (ICE) Database Version 4.0 (Ref 6), and SimaPro (Ref 8).
	Material Transport (A4)	Distances of construction material transport to the Order limits from the point of production, and mode of transport, have been assumed based on the RICS Whole Life Carbon Assessment (WLCA) guidance (Ref 4). Emission factors from DESNZ 2024, for a 100% laden (i.e., loaded to maximum capacity) rigid HGV journey, have been used. This calculation included well-to-tank (WTT) emissions associated with the extraction, refining, and transportation of raw vehicle fuels.
	Construction Installation process (A5)	*Waste* Construction material waste types considered for this assessment included: surplus excavated soil, non-hazardous and inert waste, hazardous waste, and municipal waste. Estimated material quantities were obtained from an RFI. The total volume of each waste type was multiplied by relevant waste emission factors from DESNZ 2024 (Ref 5). *Construction Activities* A figure for the total emissions attributed to grid electricity consumption during construction (e.g., temporary construction welfare and office facilities) has been taken directly from pre-FEED calculations completed by the AECOM design team. This figure is assumed to encompass supply chain emissions associated with electricity generation and transmission and distribution (T&D) losses.

PAS 2080 Lifecycle Stage		GHG Calculation Method and Assumptions
		Terrestrial plant fuel use was estimated based on an assumed total diesel consumption of 1,487,411 litres across the construction period. Estimated diesel consumption was multiped by a DESNZ 2024 (Ref 5) emissions factor for liquid diesel. This calculation included WTT emissions associated with the extraction, refining, and transportation of fuels. *Worker transport* Emissions from transportation of workers to the work site (i.e., commuting) was calculated based on 1,374 daily two-way construction worker vehicle movements to the Order limits; this assumption is detailed within **Chapter 5: Construction Management and Programme** (**EN010166/APP/6.2.5**). In addition, it was assumed that workers commute an approximate 50 km (round trip). GHG emissions were calculated using the DESNZ 2024 (Ref 5) emission factor for an average diesel car. Like above, this calculation includes WTT emissions associated with extraction, refining, and transportation of vehicle fuels. *Demolition activities* Emissions attributed to demolition activities was determined using the Royal Institute of RICS WLCA (Ref 4) benchmark of 40 $kgCO_2e/m^2$. The total floor area assumed for demolition was 5,804 m^2, including the gas treatment plant (GTP), existing GTP Above Ground Installation (AGI), stores building, and temporary modular structures (and removal of temporary modular structures) (see **Chapter 5: Construction Management and Programme** (**EN010166/APP/6.2.5**)). *Water use* Emissions associated with water consumption during construction was estimated using the Forum for Construction's (Ref 8) benchmark of 148 m^3/£ millions of construction value. This figure was multiplied by the maximum capital expenditure (CAPEX) of the Proposed Development's construction value.
Use Stage	Use (B1)	*Fuel Usage (CCGT emissions and other fuels)* Emissions from natural gas combustion in the CCGT was calculated using Heat and Material Balance (HMB) tables developed by the AECOM design team; these tables provide CO_2 flow rates of treated

PAS 2080 Lifecycle Stage	GHG Calculation Method and Assumptions
	exhaust flue gases (i.e., post carbon capture plant) for differing operational modes (see **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**) for more detail). WTT emissions from the upstream natural gas supply chain were estimated by applying a ratio (0.165) to the gross unabated CO_2 emissions from the HMB tables (above). This ratio accounts for emissions from venting, flaring, and fugitive emissions. This ratio has been derived from published DESNZ 2024 emissions factors (Ref 5) for direct (Scope 1) and indirect (Scope 3) emissions from natural gas. These are emissions over which the Applicant has no control. The Liverpool Bay Carbon Capture and Storage system is assumed to have a 95% availability rate for the transport and storage (T&S) of captured carbon. To account for T&S unavailability, the CCGT is assumed to run unabated (i.e., without carbon capture) for 5% of the Proposed Development's operation. This is considered a worst-case scenario for GHG emissions. Total diesel requirements across operation were multiped by a DESNZ 2024 (Ref 5) emissions factor for liquid diesel. This calculation included WTT emissions associated with the extraction, refining, and transportation of raw fuels. *Raw Material Demand* The main raw materials (e.g., chemicals and gases) required for the Proposed Development were monoethanolamine, sodium hydroxide, sulphuric acid, and nitrogen. Estimated raw material quantities were obtained from the Proposed Development design team. Embodied GHG emissions were calculated by multiplying the total quantities of each chemical by relevant SimaPro emission factors (Ref 7). *Material Transport* Emissions from chemical delivery were calculated based on an assumed 23 HGV tankers arriving on-site per week. Assuming the regional manufacturing of chemicals, each HGV travels 160 km round-trip. The

PAS 2080 Lifecycle Stage		GHG Calculation Method and Assumptions
		total distance travelled (5,740,800 km) was multiplied by the DESNZ 2024 emission factor (Ref 5) for a 50% laden average HGV. *Worker Transport* Emissions from operational staff transport assume 66 workers commuting solo to the Proposed Development per day, each traveling an average of 50 km round-trip in a medium diesel car as a worst-case for GHG emissions. The total distance travelled was multiplied by relevant emissions factors; calculations include WTT emissions for raw vehicle fuel supply (Ref 5). *Waste* The assessment considered three main operational waste types: reflux purge, acid wash purge, and amine reclaimer sludge. Quantities of each waste type were multiplied by DESNZ 2024 emission factors (Ref 5). Waste disposal is assumed to occur off-site, with GHG emissions from transport calculated using the DESNZ 2024 (Ref 5) emission factor for a 100% laden HGV on a 40 km round-trip.
	Maintenance, repair, replacement, refurbishment (B2-B5)	Emissions from maintenance and repair activities have been assumed in line the RICS guidance (Ref 4). Based on asset lifetimes, no replacement is anticipated to occur before 30 years, and therefore no replacement emissions have been calculated for the 30-year reference period.
	Operational energy use (B6)	Emissions from grid-electricity consumption are based on several assumptions. During normal operations, power is assumed to be provided by the CCGT. After shutdowns, the CCGT is expected to start from either 'hot' or 'cold' scenarios; assumptions surround these scenarios are outlined within Section 20.6 of **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**). Estimated grid electricity requirements across the Proposed Development's 30-year operation were multiplied by the relevant grid decarbonisation scenario emission factors (last updated, 2022) from the Department for Business, Energy and Industrial Strategy (BEIS) (Ref 5). These calculations included emissions attributed to electricity generation and transmission losses.

PAS 2080 Lifecycle Stage		GHG Calculation Method and Assumptions
	Operational water use (B7)	Emissions from operational water consumption were based on an assumed potable water demand of 10m³/h from the water mains. This volume was multiplied by the DESNZ 2024 emissions factor for water supply (Ref 5). Cooling and demineralised water demand has been excluded from this assessment, assuming it would be supplied from the nearby River Dee, resulting in minimal GHG emissions.
	Users' utilisation (B8)	Scoped out as not relevant in the context of the Proposed Development.
End of Life Stage	Deconstruction, transport, waste processing for recovery and disposal (C1-4)	End of life stage (PAS 2080 stages C1 to C4) has been excluded from the GHG calculations and quantified assessment as the decommissioning environment and associated practices of the future may vary considerably to those observed currently (e.g., waste management processes, fuel types used etc.) and therefore reasonable assumptions for quantifying associated GHG emissions cannot be determined. However, considering end-of-life phase in early design, such as reusability of materials, remains a consideration for design and mitigation.

5.3 Baseline Results

5.3.1 **Table 3** provides the GHG baseline of the Proposed Development. A series of measures to mitigate the GHG emissions from the Proposed Development have been identified. These mitigation measures have been included within the Decarbonisation Tracker **Annex A: Decarbonisation Tracker**.

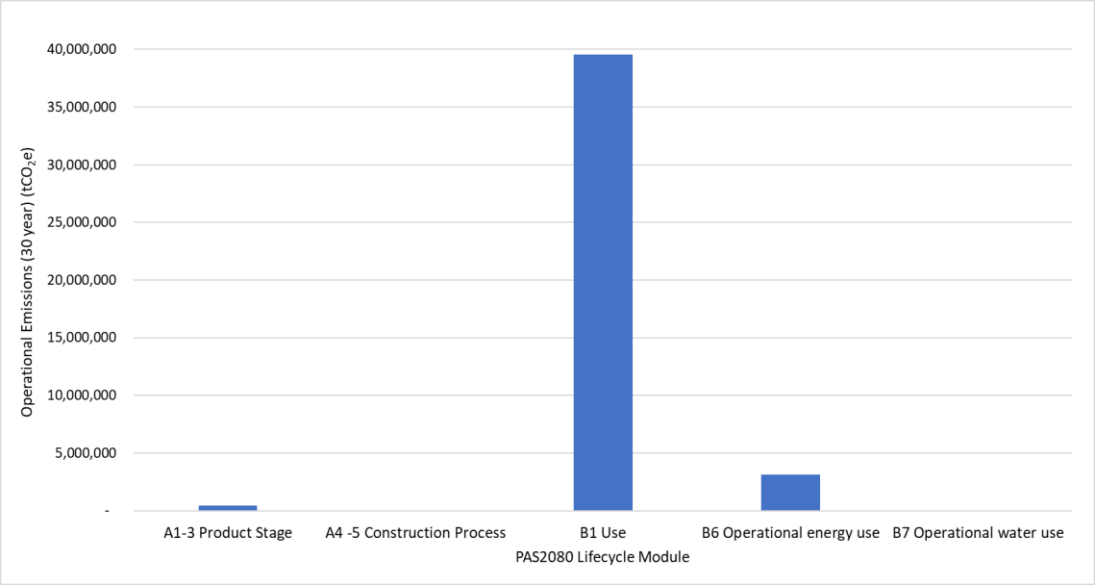
Table 3: GHG Baseline Results

Lifecycle Module		Emission Source	GHG Emissions (tCO_2e)	Total Lifecycle Emissions (%)
A: Before Use Stage	A1-3 Product stage	Embodied carbon of material and products	**413,914**	1.05%
		Transport of products/materials to site	**36,772**	
	A4-5 Construction process Stage	Electricity usage	**223**	0.04%
		Fuel usage onsite	**4,646**	
		Waste disposal	**253**	
		Water consumption	**43**	
		Worker commute	**11,650**	
		Demolition activities	**232**	
B: Use Stage	B1 Use	Fuel Usage Onsite	**38,243,395**	91.67%
		Waste Disposal	**6,456**	
		Worker Commuting	**7,556**	
		Chemical Consumption	**1,270,383**	
		Material Transport	**5,813**	
	B6 Operational energy use	Grid Electricity Use	**3,120,591**	7.24%
	B7 Operational water use	Water Consumption	**402**	0.001%
		Total	**43,122,285**	

5.4 GHG Baseline and Hotspots

5.4.1 The GHG baseline (total lifecycle emissions) is visualised in **Plate 4** below. The main GHG 'hotspot' is embodied GHG emissions in Module B1 (Use stage) which account for 92% of the Proposed Development's lifecycle emissions. In addition, Module B6 (operational energy use) emissions account for 7% of the Proposed Development's lifecycle emissions; this refers to emissions associated with grid-electricity consumption during 'hot' and 'cold' CCGT start-ups (see **Table 3**).

Plate 4: GHG baseline by lifecycle module

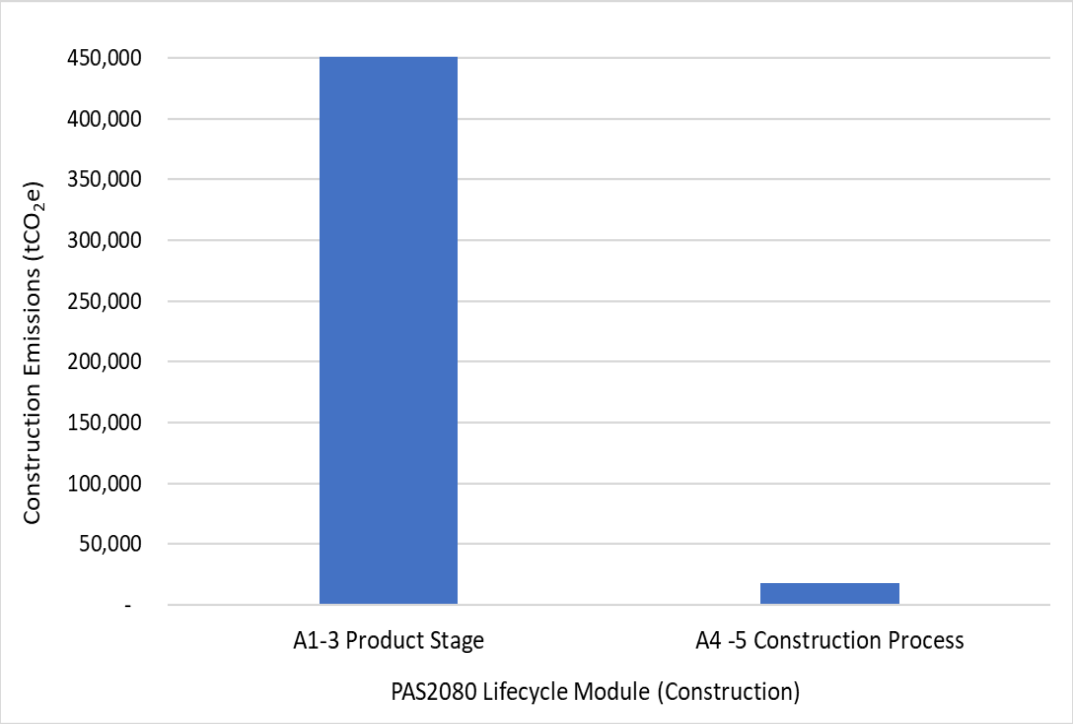


Construction Emissions

5.4.2 A breakdown of construction emissions is presented in **Plate 5**. As shown, construction emissions have been divided into two modules based of PAS2080 guidance (i.e., product stage (Modules A1-3) and construction processes (Modules 4-5)). **Table 3** provides a more in-depth breakdown of emissions sources included within each module.

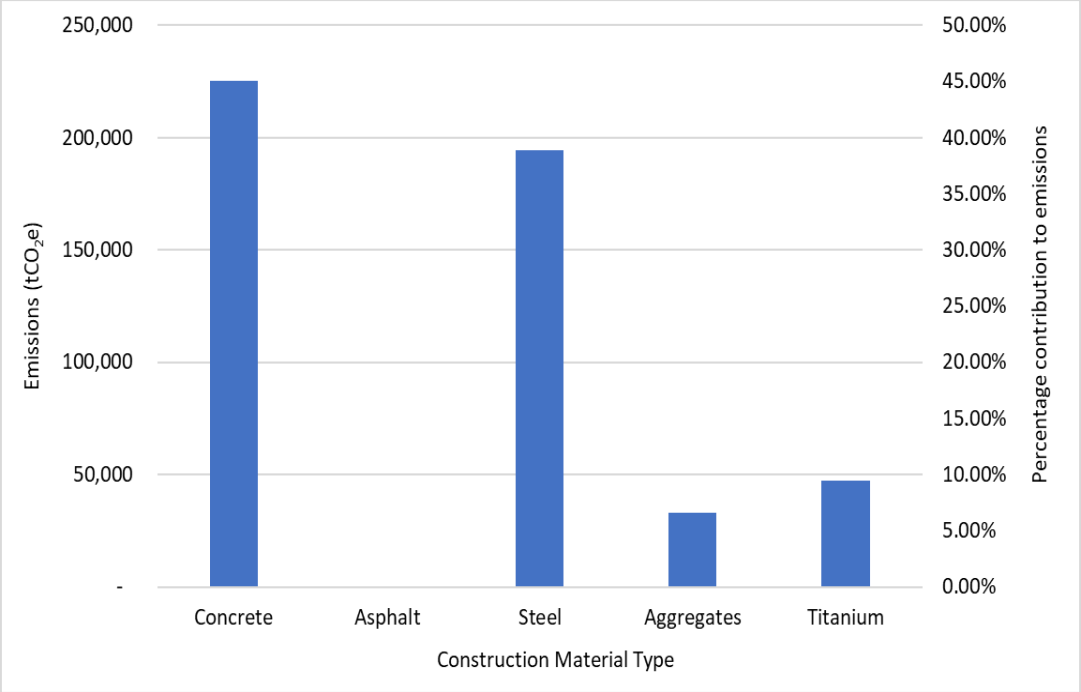
5.4.3 Most of the emissions estimated to arise from the Proposed Development's construction can be attributed to the product stage (Module A1-3) (**Plate 5**). The estimated product stage emissions outlined within **Plate 5** includes those attributed to the embodied carbon of construction materials (i.e., manufacture) and emissions associated with material transport to the Order limits (**Table 3**).

Plate 5: Breakdown of emissions associated with construction activities



5.4.4 Since the embodied emissions of construction materials (A1-3) (including emissions arising from the transport of such materials to the Order limits) is a key GHG hotspot across the Proposed Development's construction, this emissions source has been broken down further by material type (**Plate 6**).

Plate 6: Embodied GHG emissions across construction material types



5.4.5 It is evident from **Plate 6** that concrete requirements contribute the most (47%) to the Proposed Development's embodied material emissions. This can be attributed to the large concrete requirements necessary for the construction of foundations and piles within the Order limits (see Section 20.6 of **Chapter 20: Climate Change** (**EN010166/APP/6.4.20**)).

5.4.6 Second to concrete, assumed steel (used for structural reinforcement and pipework requirements) have been estimated to account for 41% of embodied material emissions. In addition, smaller proportions of embodied material emissions can be attributed to titanium (10%), aggregates (2%), and asphalt (<1%) (**Plate 6**).

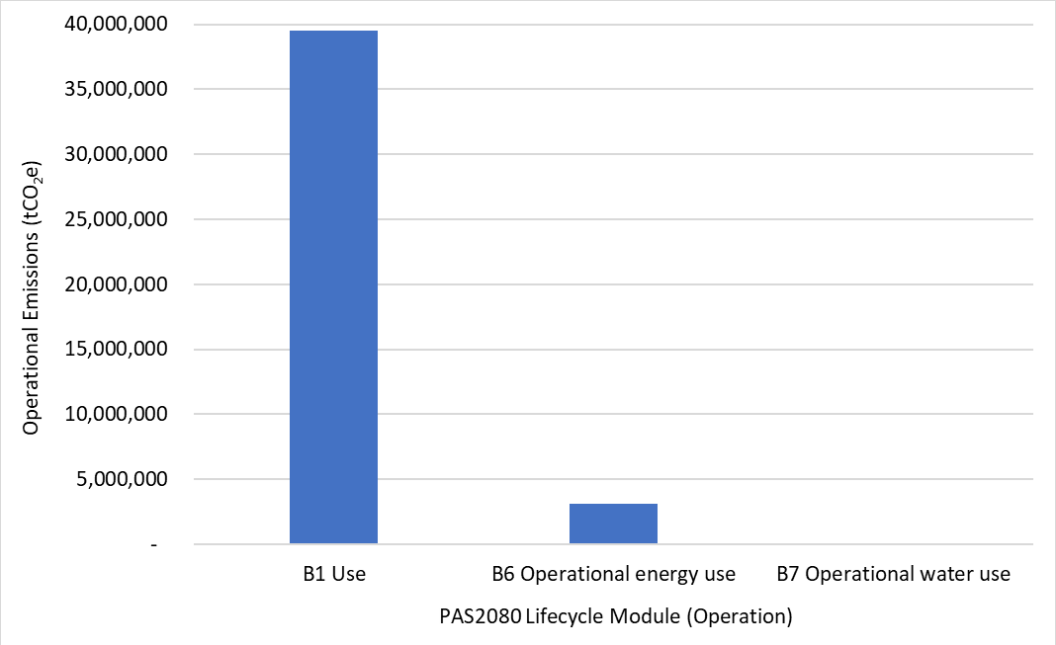
Operational Emissions

5.4.7 As shown within **Plate 4** and **Table 3** above, operational emissions (Modules B1, B6 and B7) contribute to vast majority of the Proposed Development's total lifecycle emissions (~98%).

5.4.8 **Plate 7** below provides a further breakdown of estimated emissions across the Proposed Development's assumed 30-year operation. As shown, operational emissions have been divided into three modules based of PAS2080 guidance; this includes use (B1), operational energy use (B6) and operational water use (B7). **Table 3** provides a more in-depth breakdown of emissions sources included within each module.

5.4.9 Most of the estimated emissions, produced during the Proposed Development's operation, can be attributed to the use stage (Module B1) (**Plate 7**). Emissions included within the 'use stage' bracket include those associated with fuel usage on-site (notably, the combustion of natural gas within the CCGT), waste disposal, material transport, worker commuting and chemical consumption.

Plate 7: Breakdown of emissions associated with operational activities.

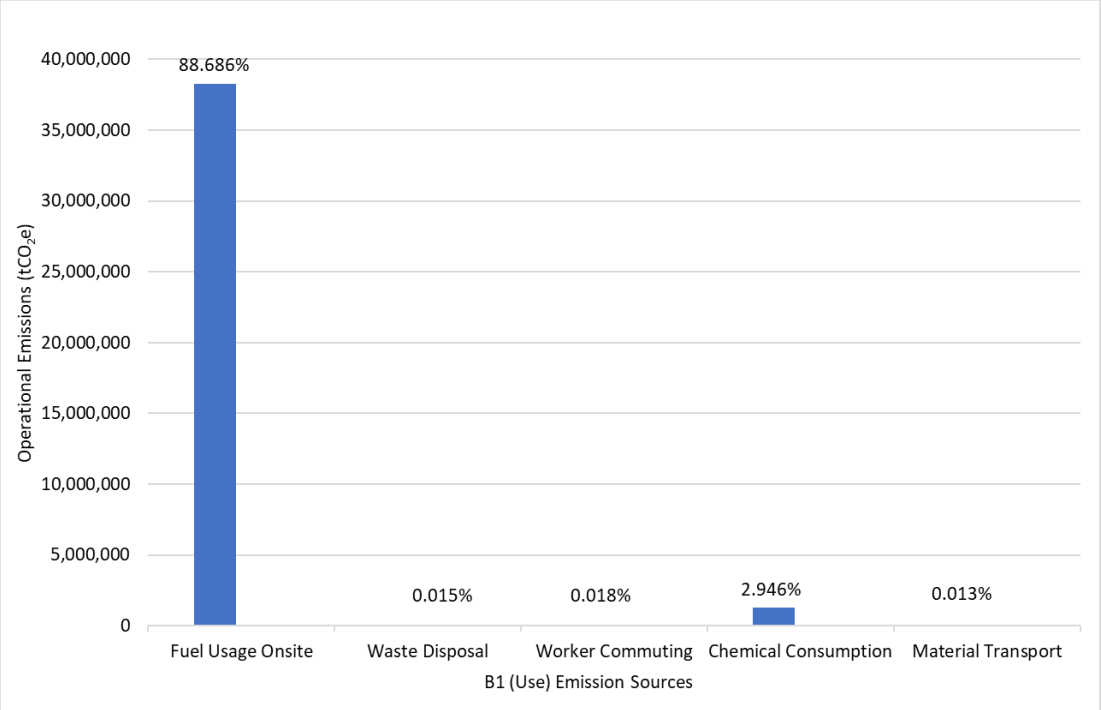


5.4.10 Most of the estimated emissions, produced during the Proposed Development's operation, can be attributed to the use stage (Module B1) (**Plate 7**). Emissions included within the 'use stage' bracket include those associated with fuel usage on-site (notably, the combustion of natural gas within the CCGT), waste disposal, material transport, worker commuting and chemical consumption.

5.4.11 Given that the use stage (B1) is a key operational GHG hotspot, **Plate 8** provides a further breakdown of use stage emissions to identify the contribution of individual emission sources to this hotspot.

5.4.12 Emissions associated with fuel usage on-site is a clear outlier when regarding contributions to use stage emissions, accounting for ~89% of total operational emissions (**Plate 8**). Following fuel usage, raw material demand is estimated to account for approximately 2.95% of total operational emissions (**Plate 8**). The main raw materials (e.g., chemicals and gases) required for the Proposed Development are assumed to be: monoethanolamine (carbon capture), Sodium Hydroxide (pH control and acid washing), sulphuric acid (pH control and acid washing), and Nitrogen (purging gas). In addition, smaller proportions of 'use stage' emissions can be attributed to operational waste disposal (0.01%), worker commuting (0.02%), and raw material transport to the Order limits (0.01%) (**Plate 8**).

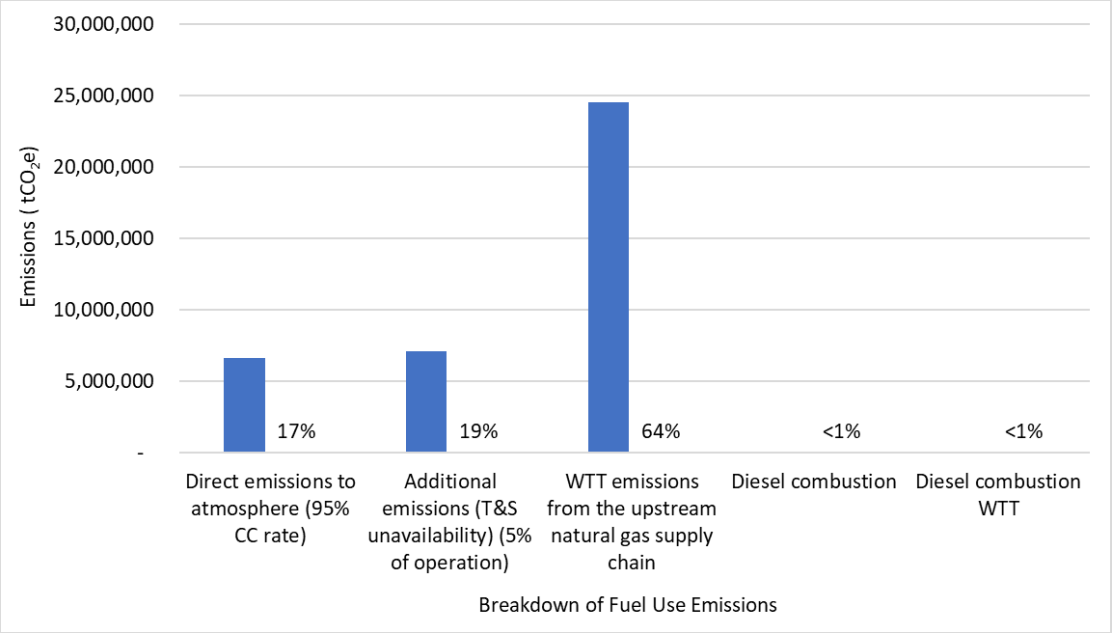
Plate 8: Operational emissions hotspots - The percentage breakdown shown is based on total emissions of the Proposed Development, which includes the emissions associated with the A1-3, A4-5, B6 and B7 lifecycle modules.



5.4.13 As noted above, fuel usage on-site accounts for the vast majority of operational emissions. In line with **Table 3**, this is representative of an estimated release of ~38 million tCO_2e across the Proposed Development's 30-year operation.

5.4.14 **Plate 9** provides a breakdown of individual emission sources contributing to the estimated emissive impact of fuel usage on-site. As shown, WTT emissions from the upstream natural gas supply chain is estimated to contribute 64% of total fuel usage emissions. Other notable contributors include emissions attributed to the unavailability of the T&S system (19%), and direct emissions from the combustion of natural gas within CCGT during operation, assuming an average 95% carbon capture rate. Key calculative assumptions associated with fuel usage on-site is shown within Section 20.6 of **Chapter 20: Climate Change** (**EN010166/APP/6.2.20**).

Plate 9: Breakdown of emissions sources attributed to fuel usage on-site.



Baseline Overview

5.4.15 Although it has been shown that the Proposed Development would result in GHG emissions, it would play a key role in decarbonising the UK electricity grid through the displacement of existing CCGTs without CCS (i.e., the existing Connah's Quay Power Station). Over its lifetime, the Proposed Development would be a key scheme for the UK to fulfil its net zero requirement (see **Chapter 7: Planning Policy** (**EN010166/APP/6.2.7**)) and transition away from fossil fuels.

5.5 GHG Accounting Process

5.5.1 GHG calculations should be quantified at the end of each stage of infrastructure delivery (i.e., design stage; construction stage), to monitor emissions and reductions achieved.

5.5.2 A suitably qualified carbon practitioner should undertake calculations at each stage and should align with GHG Protocol (Ref 9) and PAS 2080:2023 (Ref 2) GHG quantification requirements.

6. GHG Reduction Opportunities

6.1 Identification of GHG Reduction Opportunities

6.1.1 Opportunities for the reduction of GHG emissions are identified in the Decarbonisation Tracker **Annex A: Decarbonisation Tracker** and focus on reducing GHG emissions from key emissions sources. These are only potential GHG reduction opportunities identified and are not committed to through the DCO.

6.1.2 Identification of GHG reduction opportunities is a key part of the GHG management process and the Decarbonisation Tracker provides a framework for how opportunities can be identified and prioritised.

6.1.3 Opportunities are identified in terms of the following four categories:

- Strategy and Governance;
- Innovative Design;
- Lower Carbon Products; and
- Lean Construction Techniques.

6.1.4 These categories extend across the Proposed Development's lifecycle, from planning through design to delivery. By identifying and developing GHG reduction opportunities within these categories, all aspects of the Proposed Development should be considered, including management processes, procurement and company culture, and technical solutions.

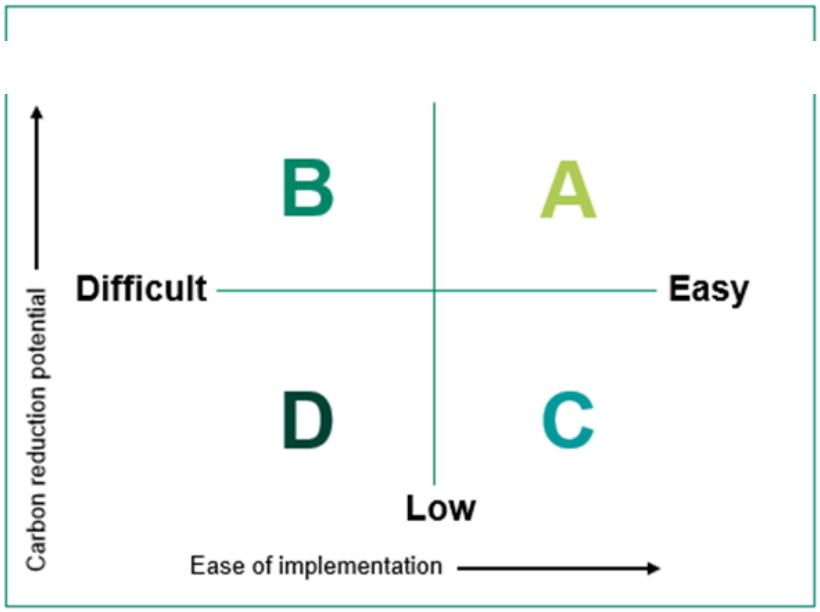
6.1.5 The initial list of GHG reduction opportunities was developed during a GHG-focused workshop with representatives from Uniper and the design team.

6.1.6 The Decarbonisation Tracker is a live document, which should be continually updated throughout the Proposed Development lifecycle as further opportunities and actions are identified, as decisions are made concerning their feasibility, and as such opportunities are implemented.

6.2 Prioritisation of Opportunities

6.2.1 To understand the potential value of GHG reduction opportunities identified, each opportunity has been assigned a prioritisation rating based on a combination of its GHG reduction effectiveness and ease of implementation using the matrix shown in **Plate 10**.

Plate 10: GHG Reduction opportunity Prioritisation Matrix



6.2.2 The 'carbon reduction potential' aspect of the matrix is determined considering by the following:

- additionality to business-as-usual (decarbonisation policy and market drivers);
- minimising negative GHG impacts;
- maximising GHG benefits; and
- level of confidence in the effect.

6.2.3 The 'ease of implementation' aspect of the matrix is determined by considering the following:

- cost implications – positive or negative;
- resource capacity and capability;
- technological impacts – enablers or constraints;
- legislation – drivers or restrictions;
- time limitations;
- whether the opportunity fits with existing priorities and commitments; and
- wider sustainability impacts – as enablers or constraints.

6.2.4 The ratings assigned to each opportunity should be seen only as an initial screening and should be reviewed periodically following further discussions and feasibility analysis as the Proposed Development progresses. Prioritisation ratings should also be assigned to any further measures

identified and recorded within the Decarbonisation Tracker. This should be the responsibility of the Uniper project management team, unless delegated to the suitably qualified carbon practitioner or the owner assigned to each opportunity as appropriate.

6.2.5 Within the Decarbonisation Tracker, owners and key actions should be identified for each opportunity throughout the Proposed Development's lifecycle. This enables specific responsibilities to be assigned within the Proposed Development's organisational structure. The actions listed, and any further feasibility analysis, are the responsibility of the owner assigned to each opportunity. Any opportunities without an assigned owner should rest with the Uniper project management team until an owner is identified.

6.2.6 The progress of each opportunity is reflected by the assigned status, which identifies the opportunities that have been implemented, those under consideration, those requiring further exploration, and those not being taken forward.

7. Targets

7.1.1 As stated in **Chapter 1: Introduction** (**EN010166/APP/6.2.1**), Uniper is committed to investing more than €8 billion (~£6.9 billion) in growth and transformation projects between 2023 and 2030. This includes developing new renewables projects, investing in clean gases such as hydrogen and new low or zero carbon power plants, and by progressively transforming Uniper's existing fleet into Europe's leading source of zero-carbon power. Uniper intends to be carbon neutral by 2040 and aims for its installed power generating capacity to be more than 80% zero-carbon by 2030.

7.1.2 Over its lifetime, the Proposed Development would be a key scheme for the UK to fulfil its net zero policy and transition away from fossil fuels. By reinforcing the electricity transmission network, the Proposed Development would facilitate a net electrical output capacity (i.e., with CCP operational) of up to 1,380 megawatts (MW) onto the national electricity transmission network and contribute to the Welsh Government's target for Wales to generate 70% of its electricity consumption from renewable energy by 2030. The Proposed Development is therefore a key part of UK policy to decarbonise the electricity grid and transition to net zero by 2050.

7.1.3 While the Proposed Development has a key role to play in helping the UK's electricity grid to decarbonise, it is still important to reduce GHG emissions associated with the Proposed Development where possible. These GHG reductions can be driven by implementation of this GHG Reduction Strategy, in particular implementation of the Decarbonisation Tracker which assigns tasks and responsibilities to relevant parties.

8. Implementation

8.1.1 Requirements and responsibilities necessary for implementing the GHG Reduction Strategy should be written into contractual agreements, including suppliers and service providers.

8.1.2 Reporting progress against the agreed GHG targets should be written into the contract of those responsible for delivery.

8.1.3 Where performance against a particular target is challenging, a collaborative approach between all involved in target delivery should be necessary to identify additional/alternative actions to meet the target and/or identify a more appropriate target to reflect factors outside of the control of the Proposed Development e.g., policy changes.

8.1.4 Key contractual clauses relevant to the above should be documented within the specification and contract documents issued to the contractor at the tender stage.

9. Review

9.1.1 Uniper should be supported through the design and planning stage by the Proposed Development's design consultant, and during the construction stage by the principal contractor. With specific regard to GHG emissions, review activities to facilitate the successful implementation of the GHG Reduction Strategy should include:

- the periodic review and update of the Decarbonisation Tracker:
  - review progress of GHG reduction opportunities implementation;
  - identify new GHG reduction opportunities;
  - assess feasibility of GHG reduction opportunities; and
  - incorporate feasible GHG reduction opportunities into design and construction plans and procurement.
- quantification of GHG emissions (at the end of each lifecycle stage or more frequently as appropriate):
  - update GHG emissions calculations associated with the Proposed Development, to reflect changes related to more accurate activity data and implementation of GHG reduction opportunities.

10. Communication and Training

10.1.1 To support this GHG Reduction Strategy, the Decarbonisation Tracker includes dashboards for communication and progress reporting. This can be used to track performance throughout design, construction and operation and support evidencing of progress towards fulfilling the GHG reduction targets.

10.1.2 The GHG Reduction Strategy should be shared and communicated with key stakeholders (including Uniper, the design consultant and the principal contractor) throughout the delivery of the Proposed Development.

10.1.3 The Proposed Development's team should undertake the necessary training to enable them to manage GHG emissions across the Proposed Development. National initiatives such as the Carbon Literacy Project or equivalent provide existing GHG training courses.

10.1.4 The design consultant should undertake necessary training to ensure that all designers on the Proposed Development are sufficiently cognisant of their role in designing out GHG emissions on the Proposed Development. This can be achieved through relevant in-house training or through external projects provided through professional bodies such as the Institution of Civil Engineers.

10.1.5 Toolbox Talks could be provided to all operatives on site to assist with the identification and implementation of specific task-related GHG reduction opportunities during construction delivery.

10.1.6 Training needs should be identified through the building of the Proposed Development's team following training needs analysis and implemented as appropriate.

Annex A: Decarbonisation Tracker

Opportunity	Description	Opportunity raised by	Date added (day/ month/ year)	Responsible for investigation and delivery	Owner	Expected implementation date (day/ month/ year)	Impact potential: - Low - High	Ease of implementation: - Difficult - Easy	Rating (impact vs implementation)	Delivery timeframe (short, medium or long term)	Status	Action required? (Y/ N)	Comment
Schedule construction in conjunction with T&S network availability	Phase development of CCGT trains 1 and 2 to match the availability of capacity of the HyNet network.	Uniper	06/03/2025	Designer	Uniper	n/a	High	Easy	A	Short term (during design)	Implemented		
Sustainability specifications for contractors within tender documents.	Specify maximising low carbon materials and lean construction within EPC contract tender and assign high weighting in scoring of potential contractors.	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Medium term (during construction)	Under consideration		
Utilise grid electricity for construction activities	Utilise grid electricity for construction activities, where possible, instead of fossil fuel based machinery/equipment.	AECOM	06/03/2025	Contractor	Uniper	n/a	Low	Easy	C	Medium term (during construction)	Implemented		
Low carbon concrete/cement alternatives	Procure and utilise low carbon concrete/cement alternatives where specifications allow. This could include concrete featuring recycled aggregate and/or modified versions of traditional Portland cement (CEM II and CEM III) i.e., those incorporating supplementary cementitious materials like ground granulated blast-furnace slag (GGBS) or Limestone fines.	AECOM	06/03/2025	Contractor	Uniper	n/a	High	Easy	A	Medium term (during construction)	Under consideration		
Leakage reduction strategy	Produce a Leakage Reduction Strategy focussed on CO_2 and methane leakage during operation. This could involve site-wide monitoring programming and testing campaigns amongst others.	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Short term (during design)	Under consideration		
Venting strategy	Produce a 'Venting Strategy' which aims to reduce/optimise CCGT venting activities during the Proposed Development's operation.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Mitigate 'cold' CCGT start-ups	Develop a technical solution to keep the CCGTs warm during shutdown periods to mitigate the need for cold start-ups, thus decreasing start-up grid electricity demand. This could include the incorporation of electrical and/or thermal energy storage into the	Uniper	06/03/2025	Designer	Uniper	n/a	High	Easy	A	Short term (during design)	Under consideration		
Reuse of existing assets	Embed the reuse/refurbishment of the existing assets onsite (e.g., existing cooling water storage tanks, workshops, and other facilities), thus avoiding the need to construct new assets of a similar use.	AECOM	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Electrification of assets	Prioritise the use of electrified assets (e.g., auxiliary boilers) of fossil fuelled alternatives where possible.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Difficult	D	Short term (during design)	Under consideration		
Recycled/low carbon steel	Procure recycled or low carbon steel in favour of virgin alternatives.	Uniper	06/03/2025	Contractor	Uniper	n/a	High	Easy	A	Medium term (during construction)	Under consideration		
Soil stabilisation techniques	Implement soil-stabilisation techniques for laydown areas rather than using additional hardstanding.	AECOM	06/03/2025	Contractor	Uniper	n/a	High	Difficult	B	Medium term (during construction)	Under consideration		
High energy generation efficiency (net)	Explore options to increase the energy generation efficiency of the CCGT during operation, as much as possible, when capturing CO_2 (i.e., when the CCP is operating).	Uniper	06/03/2025	Designer	Uniper	n/a	High	Difficult	B	Short term (during design)	Under consideration		
Capture of CCGT stack emissions	Capture CCGT exhaust emissions at a capture rate of 95%, mitigating direct emissions from the Proposed Development to the atmosphere.	Uniper	06/03/2025	Designer	Uniper	n/a	High	Difficult	B	Short term (during design)	Implemented		
Combined heat and power (CHP)	Install and utilise a combined a CHP onsite to provide heat, steam, and hot water during operation.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Difficult	D	Short term (during design)	Under consideration		
Emissions offsets	Purchase carbon offsets for unabated CCGT exhaust emissions.	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Long term (during operation)	Under consideration		
Direct atmospheric carbon capture	Install technologies for the direct capture of atmospheric carbon either, onsite or offsite, to mitigate unabated CCGT exhaust emissions (i.e., those not capture by the CCP).	Uniper	06/03/2025	Client	Uniper	n/a	Low	Difficult	D	Short term (during design)	Under consideration		
Electric and/or hydrogen powered vehicles (construction)	Utilise electric and/or hydrogen powered vehicles during construction.	Uniper	06/03/2025	Contractor	Uniper	n/a	Low	Easy	C	Medium term (during construction)	Under consideration		
On-site renewable electricity generation	Design for on-site renewable electricity generation (e.g., installation of solar PV structure roofs such as buildings, car ports, shelters (see opportunity 19)) to reduce grid electricity demand i.e., during CCGT shut down periods.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Shelter settling ponds	Shelter (waste water) settling ponds from the sun to minimise evaporation and regulate temperature control (i.e., minimising chemical reaction and subsequent releases of GHGs).	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Electric vehicle charging	Install/provide charging points for electric vehicles onsite.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Operational water reuse	Reuse water or process water streams (e.g., DCC effluent stream to supplement cooling water make -up) to displace towns mains water requirements where possible.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Medium term (during construction)	Under consideration		
Shuttle bus for workers	Deploy a network of shuttle buses which transport operational staff from a range of pick up points (e.g., railway station) within the local area to the site.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Electric car scheme	Provide a subsidy for operational staff who purchase electric vehicles and/or implement a specific electric car scheme for operational staff.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Automatic lighting	Install automatic lighting systems where possible to mitigation unnecessary operational electricity use.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Community project/engagement	Engage with the local community (e.g., schools/colleges) through the development a educational project or competition regarding decarbonisation options for construction. Fund local community projects which focus on decarbonisation and/or nature-positive	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Waste contractor selection	Select an operational waste contractor which offers guaranteed low carbon waste treatment solutions (e.g., high recycling rate, anaerobic digestion, etc).	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
LED lighting	Install LED lighting in place of standard bulbs (where lighting requirements allow).	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Nature-based solutions for shading	Focus on the implementation of nature-based solutions (e.g., tree cover) to shade outdoor communal outdoor areas to avoid the use of air conditioning.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Short term (during design)	Under consideration		
Operational travel plan	Develop an operational travel plan which focusses on reducing car-based travel to the site (e.g., promoting car pooling between staff, cycle-to-work schemes, public transport to site, etc).	AECOM	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Periodic decarbonisation reviews	Commit to publishing regular periodic review of options to reduce CO_2 impacts (may be a permit condition)	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Long term (during operation)	Under consideration		
Low carbon operational consumables	Procure low carbon operational consumables (e.g., ammonia, amines, etc) used with the CCGT and/or carbon capture process.	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Long term (during operation)	Under consideration		

Opportunity	Description	Opportunity raised by	Date added (day/ month/ year)	Responsible for investigation and delivery	Owner	Expected implementation date (day/ month/ year)	Impact potential: - Low - High	Ease of implementation: - Difficult - Easy	Rating (impact vs implementation)	Delivery timeframe (short, medium or long term)	Status	Action required? (Y/ N)	Comment
Low carbon operational plant	Use low carbon operational plant (e.g., biofuel) in place of diesel powered plant.	Uniper	06/03/2025	Designer	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Reduce water content of liquid wastes	Reduce the water content of operational liquid wastes onsite to reduce waste volumes required to be removed offsite, leading to decreased tanker movements.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Onsite anaerobic digestion	Install an anaerobic digester onsite for the treatment of operational organic waste to produce biogas/biomethane/biofuel for subsequent use onsite.	Uniper	06/03/2025	Designer	Uniper	n/a	High	Difficult	B	Short term (during design)	Under consideration		
Longer working days during summer	Plan for longer working days during the summer months to maximise natural light use and minimise artificial lighting in winter.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Difficult	D	Long term (during operation)	Under consideration		
UK Emissions Trading Scheme (UK ETS)	Participate in the UK ETS regarding unabated operational emissions.	Uniper	06/03/2025	Client	Uniper	n/a	High	Easy	A	Long term (during operation)	Implemented		
Resource efficiency reviews	Conduct resource efficiency reviews every four years of operation.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Implemented		
Operational energy auditing	Audit operational energy use and subsequently identify cost-effective energy-saving measures across the Proposed Development's operation inline with the Energy Saving Opportunity Scheme (ESOS).	Uniper	06/03/2025	Client	Uniper	n/a	Low	Difficult	D	Long term (during operation)	Under consideration		
Modular/offsite construction of equipment	Modular/offsite construction of equipment to minimise onsite assembly/fabrication.	Uniper	06/03/2025	Contractor	Uniper	n/a	Low	Difficult	D	Medium term (during construction)	Under consideration		
Procure gas from the Oil and Gas Methane Partnership (OGMP)	Procure gas from the OGMP to align with the partnership's methane reduction targets and supply chain transparency.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Easy	C	Long term (during operation)	Under consideration		
Local material suppliers (construction	Engage with local suppliers of construction materials, and procure where feasible, to reduce upstream supply chain emissions associated with the delivery of materials to the site.	Uniper	06/03/2025	Client	Uniper	n/a	High	Difficult	B	Medium term (during construction)	Under consideration		
Local construction contractors	Employ local construction contractors to reduce emissions associated with transport to and from the site.	Uniper	06/03/2025	Client	Uniper	n/a	Low	Difficult	D	Medium term (during construction)	Under consideration		
Develop an operational strategy for planned outages of the T&S system.	Develop a strategy to align the CCGT's operational generating scenarios with planned outages of the HyNet system to mitigate the plant's operation in an 'unabated' mode.	AECOM	06/03/2025	Client	Uniper	n/a	High	Easy	A	Short term (during design)	Implemented		

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