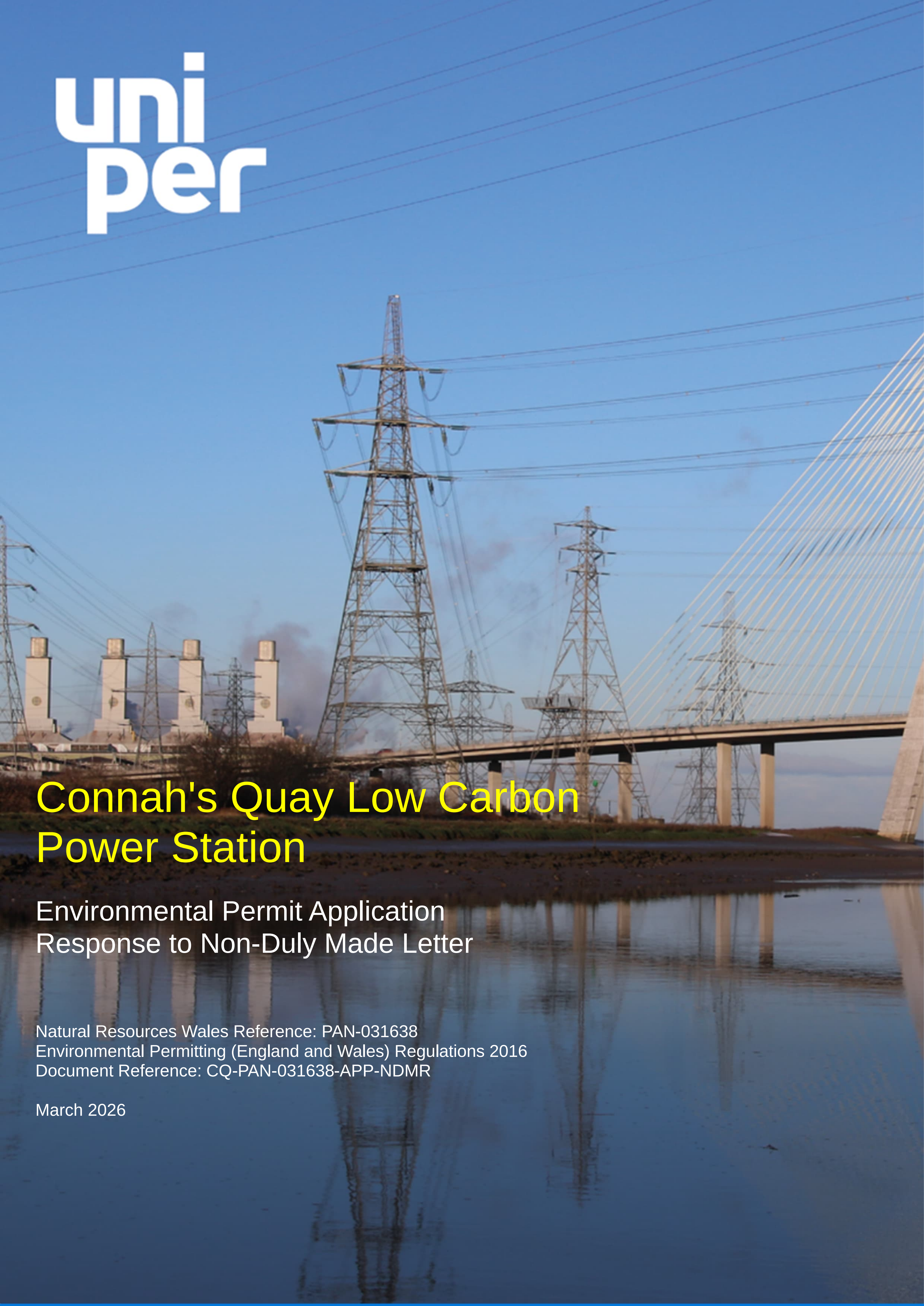

Connah's Quay Low Carbon Power Station

Environmental Permit Application
Response to Non-Duly Made Letter

Natural Resources Wales Reference: PAN-031638
Environmental Permitting (England and Wales) Regulations 2016
Document Reference: CQ-PAN-031638-APP-NDMR

March 2026

Prepared for:
Uniper UK Limited

Prepared by:
AECOM Limited

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Glossary

Abbreviation	Term
AGI	Above-Ground Installation
BAT	Best Available Techniques
BAT AEL	Best Available Technique-Associated Emission Level
BAT-AEEL	Best Available Technique Associated Energy Efficiency Level
BATc	Best Available Technique Conclusions
BRef	Best Available Techniques Reference Document
CCGT	Combined Cycle Gas Turbine
CCP	Carbon Capture Plant
CCS	Carbon Capture Storage
CEMs	Continuous Emissions Monitors
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CQPS	Connah's Quay Power Station
DCC	Direct Contact Cooling
DCO	Development Consent Order
DLN	Dry Low-Nox
ELV	Emission Limit Value
EMS	Environmental Management System
ENI	Operator of the CO_2 transport and storage network.
EPR	Environmental Permitting Regulations
FEED	Front-End Engineering Design
g	Gram
GT	Gas Turbine
GTP	Gas Treatment Plant
GW	Gigawatt
ha	hectare
HP	High Pressure
HRSGs	Heat Recovery Steam Generators
HVO	Hydrotreated Vegetable Oil
IED	Industrial Emissions Directive
LCP	Large Combustion Plant
LNB	Low NOx Burners
MCERTs	Monitoring Certification Scheme
MCP	Medium Combustion Plant
MW	Megawatt
MWe	Megawatt Electrical
MWth	Megawatt Thermal
N_2	Nitrogen

Abbreviation	Term
NH_3	Ammonia
NOx	Oxides of Nitrogen
NRW	Natural Resources Wales
O_2	Oxygen
OEM	Original Equipment Manufacturer
SCR	Selective Catalytic Reduction
T&S	Transport and Storage

1. Introduction

1.1 Report Context

This report has been prepared by AECOM Limited ('AECOM') on behalf of Uniper UK Limited, referred to as 'the Operator', in support of the new bespoke Environmental Permit application for the proposed Connah's Quay Combined Cycle Gas Turbine (CCGT) with Carbon Capture Plant (CCP) ("Proposed Installation").

1.2 The Proposed Installation

The design of the Proposed Installation is subject to ongoing technical studies, to provide flexibility and to align with the current grid connection, but it is expected to comprise the development of up to two CCGT units achieving a net electrical output capacity of up to 1,380 megawatts (MW; referred to as MWe for electrical output) (with CCP operational) onto the national electricity transmission network.

The Proposed Installation will generate electricity from combustion of natural gas within a CCGT. Hot exhaust gas from the combustion process will be used to drive the gas turbine (GT), and steam which will be generated from the heat of the exhaust gas, in the heat recovery steam generator (HRSG), will be used to drive the steam turbine (ST). The exhaust gas will then pass through pre-treatment stages, including selective catalytic reduction (SCR) using ammonia (NH_3) to reduce oxides of nitrogen (NOx) in the gas and be subsequently cooled via a direct contact cooler (DCC), in the CCP. The CCP will use an amine-based solvent to absorb carbon dioxide (CO_2) from the exhaust gas within a packed column (absorber), via a weak acid-base reaction. The CO_2-depleted exhaust gas then passes through water and acid wash sections and is released to atmosphere via a stack. Continuous Emissions Monitoring System (CEMs) equipment will be located within the stack to monitor pollutants to air.

The CO_2-rich solvent exits the absorber, and passes through a lean/rich heat exchanger, and then into the desorber. The CO_2 is liberated from the solvent by heat, supplied by low pressure steam from the HRSG in normal operation. This steam is supplied to the desorber reboiler. The now lean/rich solvent will be recirculated within the plant. The CO_2 rich vapour exits the top of the desorber and passes through a reflux stage to maximise solvent-CO_2 separation. The CO_2 vapour is conditioned to reduce water and oxygen to transport and storage network's specifications after entering a low-pressure compressor to compress the gas to export pipeline pressure (8-43 Bara). The CO_2 is then metered and exported to transport and storage network's CO_2 pipeline which is operated by ENI. The solvent will accumulate impurities over time, and these will be removed via a solvent reclaiming process which will be a thermal process, either continuously via a slipstream or as a batch process.

The CCP emissions will be residual pollutants from the combustion and treatment processes, including NOx, NH_3 and carbon monoxide (CO). The CCP will be designed to capture a minimum of 95% of the CO_2 emissions from the CCP as an annual average of all normal operating conditions. There may also be trace pollutants within the flue gas, including trace levels of solvent and solvent break-down products from within the process. Emissions will be minimised using the water and acid wash steps on the absorber and monitored at the emission point within the abated flue gas stack prior to release. In addition to the CCP emission point, there will be an intermittent-use emission point from the stack, serving the HRSG exhaust. Emissions from the CCP emissions stack, and HRSG stack will meet the emission limits for LCP under the Industrial Emissions Directive.

Other supporting infrastructure and plant to the Proposed Installation will include the storage of solvent, caustic soda, sulphuric acid and water-treatment chemicals, demineralisation water treatment plant to produce high-purity water for use in boilers, blending, closed loop cooling and other processes. It will include an electric auxiliary boiler for start-up and dispatchability support, emergency diesel generators for safe shutdown during a power failure scenario, closed surface water drainage and appropriate treatment facilities, and infrastructure for natural gas import and conditioning and CO_2 conditioning and export. The number and thermal rating of the emergency generator(s) will be determined during detailed design and will be classed as medium combustion plant (MCP).

The Proposed Installation will also be supported by natural gas supply, existing potable water supply, existing water abstraction and discharge, electrical connections, utilities, access works and CO_2 export connection. The water abstraction for the Proposed Installation's cooling system will be in line with the extraction at the existing Connah's Quay Power Station and is not expected to exceed the current abstraction permit requirements. Process water and/or wastewater from the site will also be discharged to the existing Connah's Quay Power Station lagoon before being purged into the River Dee.

The Proposed Installation will 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 will 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 will be stored in depleted offshore gas reservoirs in Liverpool Bay.

The Proposed Installation will be designed to optimise the capture of CO_2 when operating in dispatchable mode, while minimising emissions and waste generation and maximising energy efficiency. BAT assessments have been prepared to demonstrate the Proposed Installation will be designed and operated in accordance with BAT for Large Combustion Plant (LCP), Energy Efficiency (EE), Post-Combustion Carbon Capture (PCC) plant design and Cooling.

The Proposed Installation will be designed to optimise the capture of carbon dioxide from the power station operating in dispatchable mode, while minimising emissions and waste generation and maximising energy efficiency. While individual BAT assessments have been prepared to address best available techniques for Large Combustion Plant, Energy Efficiency, Post-Combustion Carbon Capture plant design and cooling, the system will be integrated to address multimedia effects across the Proposed Installation as a whole.

1.3 Scope of this Response

The application for an environmental permit was submitted on the 30th January 2026 to Natural Resources Wales (NRW).

As a result of the Duly Making process NRW has issued a request for additional information (ref Letter dated 13/03/2026) under the Environmental Permitting Regulations 2016, as amended.

This report provides the response to the questions raised by NRW. Information contained in this report will form part of the application information. The report is supported by updated application documents which are provided in the appendices of the report. Where relevant, the updated application documents will supersede the originally submitted versions.

2. Responses to Duly Making Questions

2.1 Options Appraisal

Article 12(k) of the Industrial Emissions Directive (2010/75/EU) (IED) requires applications for permits to include a description of:

“the main alternatives to the proposed technology, techniques and measures studied by the applicant in outline.”

On this basis, please provide an options appraisal explaining briefly why:

I. a combined cycle natural gas turbine combustion plant was chosen for power generation, when compared with other technology choices;

II. amine absorption CO2 scrubbing was selected rather than other technology choices; and

III. why a proprietary amine option was preferred to a generic/reference technology e.g. Mono-ethanolamine.

Uniper Response

2.1.1 Selection of Power Plant Technology

In selecting the Proposed Development, the Applicant had regard to the following Project Objectives:

- land available for the power plant to be built on, which:
    - must include land for the physical assets of the plant itself, plus laydown and maintenance areas to facilitate the construction and operation of the facility; and
    - ideally should entail the least use of powers such as compulsory purchase rights to obtain the required land areas.
- connections for the power plant, including:
    - grid connections for export of the generated electricity and allowing sufficient import to allow for house loads (pumps, fans, building services) when the power plant is not operating. Ideally, this should require the least amount of additional construction of electricity transmission infrastructure due to the additional cost and timelines associated with such development;
    - natural gas, for firing the gas turbines at the power plant. Similarly to electricity connections, this should require the least amount of additional construction of gas transmission infrastructure due to the additional cost and timelines of such builds;
    - water connection, for processing water supplies, and also for buildings such as offices and changing facilities. Plentiful supplies of cooling water to provide efficient cooling of the power cycle and associated balance of plant (water can be abstracted and returned to the water body);
    - for power plant utilising carbon capture, convenient connection to CO_2 transport infrastructure is required. It must be recognised that this is a nascent industry in the UK, albeit one supported by Government, and therefore opportunities for connection to CO_2 infrastructure are extremely limited at this time. Being situated near other early adopters would be beneficial to minimise connection costs and bringing carbon capture, transport and storage networks on stream; and

  - in all cases, where these services are not nearby, then land may need to be acquired through compulsory purchase to achieve connections. In many cases sites may simply not be viable at all, where all the connection requirements above cannot be met.
- staffing:
  - trained and competent personnel are required to build, operate and maintain the facility.
- speed of deployment:
  - given the pressing need for a low carbon power plant to be connected to the grid to achieve the goals of Clean Power 2030, sites where the above requirements are met would naturally be favoured for such developments and should be accelerated in their deployment.
- flexible Generation:
  - a further benefit that would ideally be demonstrated is that new or replacement flexible generation capacity can be brought on stream without requiring existing generation capacity to be removed from the system substantially before the new capacity is available.

The considerations for each technology option are presented in Table 1 on the following page.

The BAT assessment indicates that Combined Cycle Gas Turbine (CCGT) technology represents the Best Available Technique for a large-scale dispatchable electricity generation facility at Connah's Quay due to:

- High thermal efficiency relative to alternative thermal technologies;
- Lower specific emissions of CO_2, NOx and particulates;
- Proven capability for flexible operation to support renewable generation;
- Compatibility with carbon capture systems and hydrogen conversion pathways;
- Can be deployed by 2030; and
- Makes full use of the existing grid, gas, cooling-water and CO_2 export infrastructure at the existing Connah's Quay Power Station.

Alternative technologies (nuclear/SMR, hydrogen-firing, tidal, wind, solar) were discounted as they could not meet the Project Objectives or deployment timeline. Further detail is provided in ES Volume II, Chapter 6: Project Alternatives.

Table 1. BAT Summary for Power Generation Technology

Technology	Option	Environmental Performance	Operational Suitability	Advantages	Disadvantages	BAT Assessment
Combined Cycle Gas Turbine (CCGT)	Gas turbine with heat recovery steam generator and steam turbine. Typically 400–700 MW per block.	High efficiency (~55–60%). Lower CO_2 and NOx emissions than other fossil technologies. Compatible with SCR and low-NOx burners.	High reliability and suitable for flexible dispatch. Ramp rates typically 30–50 MW/min.	Mature technology; high efficiency; relatively low emissions; proven at large scale.	Fossil fuel combustion produces CO_2 unless carbon capture applied.	BAT for large-scale dispatchable power generation, but does not meet UK decarbonisation targets.
CCGT with Carbon Capture and Storage (CCS)	CCGT plant with post-combustion CO_2 capture, compression and transport to geological storage.	CO_2 emissions reduced by up to ~90%. Slight increase in fuel consumption due to capture energy penalty.	Dispatchable but with reduced operational flexibility due to capture plant operation constraints	Significant reduction in greenhouse gas emissions; compatible with decarbonisation strategies.	High capital cost; energy penalty; requires CO_2 transport and storage infrastructure.	• Considered BAT for low-carbon fossil fuel power generation where CCS infrastructure is available and for large scale dispatchable power generation. • Technically and commercially viable low- carbon generation technology capable of being deployed by 2030. • It also uniquely makes full use of the existing grid, gas, cooling- water and CO_2 export infrastructure at the existing Connah’s Quay Power Station.
Open Cycle Gas Turbine (OCGT)	Single-cycle gas turbine without heat recovery. Typically 100–400 MW units used for peaking capacity.	Lower efficiency (~35–45%) resulting in higher CO_2 emissions per MWh than CCGT.	Very high flexibility and fast start capability.	Rapid response; low capital cost.	Poor fuel efficiency; higher emissions intensity; less suitable for sustained operation.	Not BAT for continuous large-scale generation but may be BAT for short-duration peaking or reserve capacity.
Reciprocating Gas Engines	Modular gas engine units typically 10–25 MW each operating in multiple banks.	Moderate efficiency (~45–50%). Emissions controllable using oxidation catalysts and SCR	Extremely flexible and capable of rapid start/stop.	Excellent grid balancing capability; high redundancy.	Very large number of engines required for 1300 MW output; high maintenance burden; land-use impacts	Not BAT for utility-scale generation (>1 GW) due to scale inefficiency.
Hydrogen-fired CCGT	Gas turbines configured to operate on hydrogen or hydrogen-natural gas blends.	Near-zero CO_2 emissions if hydrogen produced from renewable sources. NOx emissions controlled through advanced combustion systems.	Similar dispatchability to CCGT but dependent on hydrogen supply infrastructure.	Enables deep decarbonisation; compatible with future energy systems.	Hydrogen supply, storage and transport infrastructure currently limited; higher fuel cost	Potential future BAT option, but currently limited by fuel availability and infrastructure: • currently there is no large supply of low carbon hydrogen available to fuel a power plant at Connah’s Quay; • this approach is not technically mature on large utility scale power plant; and • there is currently no business model to support the use of hydrogen for power.
Coal-fired Steam Plant (Supercritical / Ultra-supercritical)	Pulverised coal combustion generating steam to drive a turbine.	High CO_2 emissions even with high efficiency (~40–45%). Requires extensive flue gas treatment (SCR, FGD, particulate controls).	Moderate operational flexibility.	Large-scale baseload generation capability.	Highest carbon intensity among fossil technologies; significant air pollutant controls require	Not BAT for new installations in decarbonising electricity systems.
Nuclear Power (Gen III+ including SMR)	Pressurised water reactors producing steam for turbine generation.	Very low operational CO_2 emissions.	Limited operational flexibility compared with gas plants.	Large continuous output; low operational emissions.	High capital cost; long development time; regulatory complexity.	Not considered BAT for flexible dispatchable generation required for grid balancing • long development lead time means it would be impossible to contribute to Clean Power 2030 goals; • the technology may not allow the flexibility required to support intermittent renewables; • it does not make the best use of the site attributes at Connah’s Quay (connections to natural gas and Carbon Dioxide (CO2) transport infrastructure in particular); and • the technology Readiness Level does not currently allow commercial deployment (for SMR).
Renewables (tidal, wind, solar)	Tidal Barrage Wind Farm Solar Farm	Low/no operational emissions	Limited operational flexibility to respond to dispatchable operation.	All three options offer lower carbon intensity. Solar and wind have lower CAPEX/OPEX costs	Tidal barrage has higher capital and operating costs. Also is less mature than CCGT All three options require a larger footprint	• the technologies do not offer the required flexibility; • they do not make the best use of the site attributes at Connah’s Quay (connections to natural gas and CO_2 transport infrastructure in particular, but also cooling water systems); and • they do not maximise generation from the land area at Connah’s Quay.

2.1.2 Selection of Carbon Capture Technology

The key carbon capture technologies include:

- Post-combustion Capture which Involves scrubbing from flue gases after combustion, often using amine solvents. This method is suitable for retrofitting existing power plants.
- Pre-combustion Capture where fossil fuels are gasified and converted into hydrogen and before combustion. Carbon is captured, while hydrogen is used for power, offering higher efficiency but lower retrofitting flexibility.
- Oxyfuel Combustion: Fuel is burned in pure oxygen rather than air, producing a flue gas composed mainly of CO_2 and water, simplifying separation.
- Emerging Techniques include Chemical Looping Combustion (CLC) which uses metal oxides to transfer oxygen to the fuel, simplifying separation. Other methods include membrane separation and advanced adsorption, which are generally at earlier stages of development.

The considerations for each technology option are presented in Table 2 on the following page.

A review of carbon capture technologies including post-combustion solvent capture, pre-combustion capture (IGCC), oxy-fuel combustion, membrane separation, and chemical looping has been undertaken. Post-combustion amine-based capture is considered BAT for gas-fired power plants as it represents the most mature technology capable of achieving capture efficiencies of approximately 90–95%, while also allowing retrofit to conventional combined cycle gas turbine configurations. Alternative technologies such as oxy-fuel combustion and chemical looping remain at demonstration stage and therefore cannot currently be considered BAT for large-scale CCGT installations.

Therefore, for modern gas-fired power plants such as Connah’s Quay Low Carbon Power Station Post-combustion solvent capture is generally considered BAT because it:

- is the most mature and commercially demonstrated capture technology in the power sector;
- can be retrofitted to existing plants;
- can achieve ≥95% CO_2 capture under normal operation, which is considered BAT performance in permitting guidance; and
- is fully compatible with HyNet’s CO_2 transport and storage specification.

Table 2. BAT Summary for Carbon Capture Technology

Technology	Description	Typical Capture Efficiency	Typical Applicability	Advantages	Disadvantages	BAT Assessment
Post-combustion capture (chemical solvent absorption)	CO_2 removed from flue gas after combustion using solvents (e.g., amines such as MEA). CO_2 is absorbed then stripped using heat in a regeneration column	~90–95%	CCGT plants, coal plants, biomass plants	• Most mature CCS technology • Suitable for retrofit to existing plants • Compatible with gas and coal plant	• Energy penalty due to solvent regeneration • Solvent degradation and emissions risk • Large absorber columns required	• Commercially available • High technical maturity • Medium CAPEX • Best available currently
Pre-combustion capture (gasification / IGCC)	Fuel converted into syngas (CO + H_2). Water-gas shift converts CO to CO_2 + H_2. CO_2 captured before combustion; hydrogen burned for power generation	~90–95%	Integrated Gasification Combined Cycle (IGCC)	• High CO_2 concentration simplifies capture • Lower solvent energy requirement	• Requires integrated gasification plant • High capital cost • Not suitable for retrofit	• Commercially available but limited deployment • Medium technical maturity • Very high CAPEX
Oxy-fuel combustion	Fuel burned in pure oxygen instead of air. Flue gas mainly CO_2 and water vapour, enabling easy CO_2 separation after condensation.	~90–98%	New-build coal or gas plants	• High capture efficiency • Flue gas has high CO_2 concentration	• Large energy demand for air separation unit • High CAPEX and system complexity	• Demonstration / emerging • Not commercially available • Medium technical maturity • High CAPEX
Membrane separation	Selective membranes allow CO_2 to pass through preferentially, separating it from other flue gases.	~80–90%	Research / hybrid systems	• No chemical solvents required • Potentially compact systems	• Efficiency lower than solvent systems • Performance sensitive to low CO_2 concentration	• Pilot / emerging • Not commercially available • Low technical maturity • Medium CAPEX • Future option
Chemical looping combustion	Metal oxide oxygen carriers transfer oxygen to fuel in a reactor without mixing with air, producing a concentrated CO_2 stream.	Up to ~98%	Future advanced power plants	• Intrinsic CO_2 separation • Potentially high efficiency	• Complex reactor design • Limited commercial experience	• Early demonstration / emerging BAT candidate • Not commercially available • Low technical maturity • CAPEX unknown • Future option

2.1.3 Selection of Amine Option

Solvent selection was undertaken with the engineering contractors during the early feasibility stage of the project as part of the technology screening process to evaluate carbon capture technology available on the market including pre-combustion chemical solvent, post-combustion chemical solvent, physical solvent, cryogenic process and pressure swing adsorption. The initial screening process included ranking the technology according to their:

- technology readiness,
- scalability,
- efficiency,
- performance,
- effluent,
- waste,
- safety,
- cost,
- operability and
- flexibility.

At the competitive FEED stage further assessment of potential post-combustion amine based solvents is being undertaken which considers aspects such as the maturity of the systems and associated real world operation, the related energy demand, the lifecycle of the solvent and the environmental impact of the operation.

The review recognised that options could include:

- Single solvent options using amines classed as primary, secondary, or tertiary depending on whether one, two, or three of the hydrogen atoms of ammonia are replaced by organic functional groups. Some of the single amines most commonly used in CO_2 capture are monoethanolamine (MEA), methyldiethanolamine (MDEA), 2-Amino-2- methylpropanol (AMP), Piperazine (PIPA), diglycolamine (DGA), diethanolamine (DEA), and di-isopropanolamine (DIPA). MDEA is typically selected over primary (such as MEA, DGA) and secondary amines (such as DEA) due to its lower corrosivity potential (lower reactivity). This is counter-acted by adding an activator to promote the reaction with CO_2.

- Cutting-edge proprietary solvent blends are being used in new CO_2 capture technologies. These solvents are typically mixtures of several different amines.

Competitive FEED means proposals are being reviewed for two post-combustion solvent suppliers, with their proposal and solvent selection made based on Uniper's defined plant requirements.

Both FEED contractors propose proprietary multi-component amine solvents rather than generic mono-ethanolamine (MEA). This choice materially reduces environmental impact. The Air Quality Assessment demonstrates that:

- Proprietary solvents result in significantly lower amine slip than MEA-based reference cases. For example, FEED 2 data show Amine 1 emissions of just 0.087 mg/Nm^3, an order of magnitude lower than typical MEA performance.

- Nitrosamine and nitramine formation rates are substantially reduced, with very small release rates for both FEED options (e.g. FEED 1 nitrosamine levels of 0.00495 mg/Nm^3). These are well within environmental thresholds, even when assessed using extremely conservative NDMA-based toxicology assumptions.

- The Air Quality Assessment assessed all amines and degradation products against MEA-derived Environmental Assessment Levels, providing a conservative benchmark. Proprietary solvent performance met these strict limits with large margins of safety.

As a result, the proprietary solvents will:

- minimise solvent storage volumes;
- reduce absorber and wash water treatment system sizing;
- reduces the energy requirements for solvent regeneration; and
- materially reduce emissions of amines and amine degradation products compared with MEA.

2.2 CCGT Combustion Plant

Please confirm the total net rated thermal input for the two proposed CCGT units (gas & steam turbines) in MWth. The application states that the net electrical output is up to 1,380 MWe with CCP operational. However, the Environmental Permitting Regulations 2016 require us to consider thermal input.

Uniper Response

Currently a competitive Front End Engineering Design (FEED) is being progressed between two technology providers and their proposed technology solutions offer slightly different performance options. These are summarized in Table 3 below:

Table 3. FEED Performance

	MWth Input	Net Electrical Efficiency (in CO_2- abated Mode)
FEED 1	897	51.1%
FEED 2	1,285	53.7%

Both configurations fall within the range assessed in the Environmental Statement and the permit application. The Operator is seeking a permit for up to 1,285 MWth input as the final thermal input will fall within the range 897 – 1,285 MWth and will be confirmed through performance testing post commissioning.

2.3 Proposed Operating Regime

At present, four units of the existing Connah's Quay power station are operational. Paragraph 1.2.10 of the Air Quality Assessment report assumes that both units (trains) of the proposed power station are operating at full capacity from 2036. In the interim, paragraph 1.1 of the Application Supporting Statement explains:

"Construction of the Proposed Installation will be phased to deliver one train at a time, and as such there will be a transition period of parallel operation of the Proposed Installation and the existing CQPS."

4.3.1 of the Application Supporting Statement continues to state:

"During the transition period to the full operation of the Proposed Installation, one train of the Proposed installation may operate in parallel with up to two units of the existing CQPS within the constraints of the existing connection agreement."

Please can you confirm how long the parallel operating scenario described above will be in place (e.g. from "x" year to 2036) and if there are any anticipated variations to this requirement that may influence the Air Quality Modelling that has been submitted as part of the application.

Uniper Response

The construction and commissioning of Train 2 is planned to align with HyNet's confirmed expansion schedule for CO_2 transport and storage capacity. As such, the programme for Train 2 remains dependent on HyNet timelines.

Units 2 and 4 of the existing CQPS did not secure capacity market agreements for Delivery Year 2029–2030. Units 1 and 3 secured one-year agreements for that period.

Units 1 and 3 will remain operational during the transition phase until either Train 2 enters commissioning or their continued operation becomes commercially uneconomic. The Air Quality Assessment already captured the worst-case overlap of one new train operating in parallel with up to two existing units. No scenarios beyond those already assessed are foreseen, and no changes are anticipated that would materially affect the submitted air quality modelling.

2.4 Emergency Diesel Generators

Application Form B3, Appendix 8 states that there will be 5 x Emergency Generators, each with a rated input of 6.25 MWth. Please confirm if this information is correct for the purposes of the application, as section 1.3 of the application supporting document states:

"The number and thermal rating of the emergency generator(s) will be confirmed during FEED and will be classed as medium combustion plant (MCP)."

Uniper Response

For the purposes of the environmental permit, the application used a conservative placeholder of 5 × EDGs at 6.25 MWth input each. The Operator is completing a competitive FEED process at this time and this remains appropriate because:

- Both FEED designs incorporate high capacity EDGs that clearly fall within the MCP definition.
- The final EDG manufacturer, rated thermal input, and quantity of EDGs will be confirmed post contract award once the FEED option has been selected, and detailed vendor data is available
- The environmental impact assessment is unaffected, as EDGs will remain emergency only, low use plant.

The final EDG configuration will remain within the scale of impacts assessed. Final details will be submitted to NRW through the post-determination update process.

2.5 Selective Catalytic Reduction (SCR)

Please confirm if there is a wastewater discharge associated with the SCR abatement process.

Uniper Response

The SCR system does not produce a dedicated wastewater discharge.

Residual ammonia slip is removed downstream in the Direct Contact Cooler (DCC) rather than forming any SCR specific effluent stream. Across both FEED designs:

- the DCC removes ammonia from the flue gas;
- the continuous DCC bleed is routed to the WWTP, where ammonia concentrations are significantly reduced;
- any potentially ammonia contaminated effluents (including but not limited to drains or spills from SCR related equipment) will undergo the same ammonia treatment. If they are not treatable, they will be stored and removed off site for external treatment;
- treated water is recycled into the open loop cooling water system; and
- the concentrated ammonia stream (contractor-specific) is stored and removed offsite for external treatment or use.

Therefore, no wastewater discharge arises from the SCR system. Any rare maintenance water remains under existing containment controls and would only be routed to W1 if compliant; otherwise it would be tankered off-site.

2.6 Air Quality Assessment – Ecological Receptors

Figure 6 "Ecological Receptor Plan" in Sharefile folder EPR Vol IV Figures and Plans does not show the location of receptors OE27 – OE 31. Please supply an updated version of this plan showing all the ecological receptors named in the Air Quality Assessment report (Volume 3).

The Air Quality Assessment report (Volume 3) paragraph 1.1.12 refers to a list of 33 x Figures (including contour plots) that supports the assessment. Please supply these figures electronically, as they cannot be located as part of the application submission.

Uniper Response

An updated Figure 6 dated 16/03/2026 has been provided with this response and will supersede the previously submitted version.

A zip folder "AQ_Figures" has been supplied with this response and contains the figures identified in the Air Quality Assessment report.

2.7 Carbon Dioxide (CO_2) Management Plan

Please resubmit Appendix H "CO2 Management Plan" to include Figure 2 showing the location of sensitive receptors.

Uniper Response

An updated CO_2 Management Plan (dated 16-03-2026) has been provided with this response and will supersede the previously provided report.

2.8 Emissions to Water

A new emission point for surface water (W4) is proposed to be located adjacent to existing emission points W2 and W3. W2 and W3 are currently regulated under permit EPR/NP3037AF for the existing Connah's Quay Power Station. Given the location of W4 relative to both installation boundaries, please confirm if W4 is intended for inclusion in EPR/NP3037AF or if it forms part of this permit application (PAN-031638).

Process water from the proposed development will combine with process water from the existing power station and be discharged at emission point W1. The Application Supporting Statement confirms that no changes are required to the existing emission limits in permit EPR/NP3037AF. However, please confirm if there will be any change to the overall volume of cooling and process water discharged, under the worst-case operating scenario (considering both existing and proposed power stations).

Please also confirm if the proposed power station will introduce any new pollutants into the discharge at W1 (e.g. nitrogen, ammonia, amines) as a result of the operation of the carbon capture plant.

Uniper Response

2.8.1 Permit structure:

W4 will form part of this application (PAN031638). It will discharge all surface water runoff from the Proposed Development. W3 will cease to be used at an indicative date of December 2027 and the areas which currently drain via this point will be incorporated into the new drainage system and discharge via W4. Existing surface water drainage discharging via W2 will be capped after the Gas

Treatment demolition, leaving drainage from the existing station continuing to discharge via W2 under permit EPR/NP3037AF.

2.8.2 Volumes:

There are no changes to the worst case volumes of water discharge. Train 1 has been designed to utilise no more than 50% of the currently available cooling and process water capacity. Train 2 will use the remaining 50%. During the transition phase, the unused 50% will remain available to existing Units 1 and 3.

2.8.3 Discharge at W1:

Process water from the Proposed Development will combine with existing station flows at W1. No change to W1 emission limits is sought. The updated WWTP design confirms treated effluent will be partly reused, the overall W1 volumetric discharge remains within the established hydrodynamic design envelope (~2.5 m^3/s cooling water purge).

2.8.4 Pollutants:

- Amines are fully segregated and are not routed to W1. As identified in Section 4.3.9.3 of the Supporting Statement, amine contaminated waters will be contained for possible recycle within the process or taken offsite by a tanker to a specialised treatment plant. Minor leaks and spills, which could be contaminated, would be located within local kerbed areas, and be routed to the amine drain for offsite disposal.
- Residual ammonia washed out in the DCC and other ammonia bearing streams are treated in the WWTP for reuse:
  - FEED 1 achieves < 5 mg/L NH_3-N
  - FEED 2 achieves < 8 mg/L NH_3-N ·
- Treated water re-enters the open loop cooling water system or may be reused in the demin plant, where it is further diluted.
- The concentrated ammonia stream from the WWTP or ammonia streams not suitable for onsite treatment is removed offsite.

As a result, no new pollutants (amines, nitrogen species, ammonia) will be introduced at W1 beyond negligible, and treated background levels. All discharges will remain within the existing consented emission limits.

2.9 Noise Impact Assessment

Page 26 of the Noise Impact Assessment report refers to an Appendix T. Please provide an electronic copy of this appendix.

Uniper Response

The reference to Appendix T on Page 26 of the Noise Impact Assessment (NIA) was a typographical error and it should have referred to Appendix B only. We have amended the NIA report to correct this error and provide a new copy of the report dated 16/03/2026, which supersedes the version previously provided.

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