

Net Zero Teesside Project

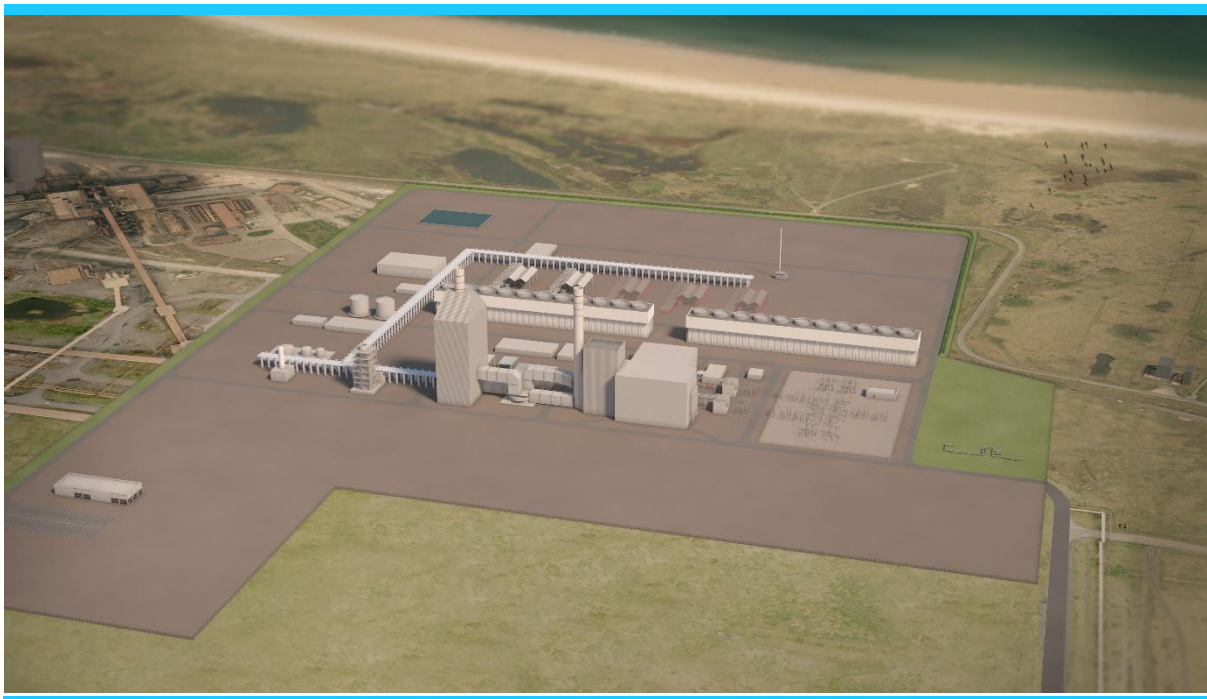
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Land at and in the vicinity of the former Redcar Steel Works site, Redcar and in Stockton-on-Tees, Teesside

The Net Zero Teesside Order

Document Reference: [5.6 Gas Connection and Pipelines Statement](#)

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(p) 6(1)(a)(ii) and 6(4)



Applicants: Net Zero Teesside Power Limited (NZN Power Ltd) & Net Zero North Sea Storage Limited (NZNS Storage Ltd)

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GLOSSARY

Abbreviation	Description
AGI	Above Ground Installation
AOD	Above Ordnance Datum
CATS	Central Area Transmission System
CCUS	Carbon Capture, Usage and Storage
CEMP	Construction Environmental Management Plan
CO ₂	Carbon Dioxide
DCO	Development Consent Order
EPC	Engineering, Procurement and Construction
ES	Environmental Statement
Ha	Hectares
HDD	Horizontal Directional Drilling
MLWS	Mean Low Water Springs
MOC	Minimum Offtake Connection
MW	Megawatt: the measure of power produced.
NGG	National Grid Gas
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NZNS Storage	Net Zero North Sea Storage Limited
NZT	Net Zero Teesside Project
NZT Power	Net Zero Teesside Power Limited
PA 2008	Planning Act 2008
PCC	Power, Capture and Compressor Site
PIG	Pipeline Inline Gauging
SoS	Secretary of State
STDC	South Tees Development Corporation
TGPP	Teesside Gas Processing Plant

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1.0 EXECUTIVE SUMMARY

Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited (the 'Applicants') are seeking development consent for the UK's first commercial scale, full chain Carbon Capture, Usage and Storage ('CCUS') project (the 'Proposed Development') which will capture up to 4 million tonnes (Mt) of carbon dioxide (CO₂) emissions per annum in this first phase of the project. The Proposed Development will comprise a number of elements, including a new gas-fired electricity generating station, with state-of-the art carbon capture technology; gas, water and electricity connections (for the electricity generating station); a CO₂ pipeline network (a 'gathering network') for collecting CO₂ from a cluster of local businesses and industries on Teesside; a CO₂ compressor station and a CO₂ export/transport pipeline. The CO₂ captured from the electricity generating station and local businesses/industries will be transported (via the export/transport pipeline) for secure storage within the Endurance saline aquifer located 145 kilometres offshore from Teesside under the North Sea. The export/transport pipeline has the capacity to carry up to 10 Mt of CO₂ per annum. The Proposed Development will therefore make a significant contribution toward the UK reaching its net zero greenhouse gas emissions target by 2050.

- 1.1.1 This document sets out who will be responsible for designing and building the proposed gas connection (the 'Gas Connection') for the Proposed Development and demonstrates that there is no reason why a gas connection will not be possible.

The Gas Connection for the Proposed Development will be supplied via a tie-in to the gas transmission network on the north bank of the Tees at Seal Sands with subsequent transport through the existing 24" Sembcorp Gas Pipeline under the River Tees to nearby Northumbrian Water Limited's Wastewater Treatment at Bran Sands. A new tie-in to the existing Sembcorp Gas Pipeline will be constructed near to the NWL Bran Sands WwTP, which will then connect via another new AGI into a new gas pipeline which will run to the east of the NWL Bran Sands WwTP up to the PCC Site. A new section of gas pipeline will be constructed using open cut and horizontal directional drilling (HDD) techniques.

- ~~1.1.2 There are two alternative gas infrastructure and pipeline route options which may be used to supply natural gas taking into account technical and environmental considerations. All of the options would route to and terminate at the gas receiving station at the Low Carbon Electricity Generating Station (Work No. 1). The supply point (Work No. 2 including 2A and 2B) for each option can be summarised, as follows:~~

~~**Option 1: New Build Option** – below ground new pipeline from an Above Ground Installation (AGI) at Seal Sands through an existing pipeline corridor to Navigator Terminals (or alternatively below ground new pipeline from a proposed new AGI connecting to the existing Trafigura gas pipeline at Navigator Terminals) and then beneath the Tees in a micro-bored tunnel direct to the Teesworks site and then~~

~~below ground along the Teesworks Spine Road to the gas receiving station on the PCC Site; or~~

~~**Option 2: Sembcorp pipeline Tie In Option** – below ground new pipeline constructed using open cut and horizontal directional drilling (HDD) from a proposed new AGI connecting to the existing Sembcorp gas pipeline at Bran Sands northwards to the gas receiving station on the PCC Site.~~

~~1.1.3~~ 1.1.2 The general pipeline route ~~options are~~ is shown on **Figure 1 (appended)**.

~~1.1.4~~ 1.1.3 The Applicants have engaged with the key Stakeholders, National Grid Gas, ~~Trafigura~~ and Sembcorp (~~‘NGG’~~) and various landowners for the installation of the connecting gas pipework and conclude that ~~all three gas supply systems and connections are potentially feasible~~ the selected option is considered to offer the best solution from reduced construction disturbance perspective (noise, spoil, traffic, safety, and other effects).

1.1.4 Decisions regarding the gas supply system(s) and connection(s) route to be used for primary, secondary and tertiary supplies will be made at the detailed design stage. and are subject to technical evaluation and commercial discussions.

1.1.5 This document also provides information on the natural gas, carbon dioxide and water pipelines to be constructed as part of the NZT development and to comply with Regulation 6(4) of the APFP Regulations (see Appendix A).

2.0 INTRODUCTION

2.1 Overview

- 2.1.1 The Applicants are seeking development consent for the construction, operation and maintenance of the Net Zero Teesside Project ('NZT'), including associated development (together the 'Proposed Development') on land at and in the vicinity of the former Redcar Steel Works site, Redcar and in Stockton-on-Tees, on Teesside (the 'Site'). The former Steel Works site, along with other land required for the Proposed Development, lies within the boundary of the land controlled by the South Tees Development Corporation ('STDC'), which is now known as 'Teesworks'.
- 2.1.2 A DCO is required for the Proposed Development as it falls within the definition and thresholds for a 'Nationally Significant Infrastructure Project' (a 'NSIP') under Sections 14(1)(a) and 15 of the PA 2008, associated development under Section 115(1)(b) and by direction under Sections 35(1) and 35ZA of the same Act. The DCO, if made by the SoS, would be known as the 'Net Zero Teesside Order' (the 'Order').
- 2.1.3 The Proposed Development will be the UK's first commercial scale, full chain Carbon Capture, Usage and Storage project and will initially capture up to 4 million tonnes (Mt) of carbon dioxide (CO₂) emissions per annum. It will comprise a number of elements, including a new gas-fired Electricity Generating Station with post-combustion carbon capture plant; gas, water and electricity connections (for the generating station); a CO₂ pipeline network (a 'gathering network') for collecting -CO₂ from a cluster of local industries on Teesside; a CO₂ compressor station (for the compression of the CO₂) and a CO₂ export pipeline.
- 2.1.4 The CO₂ captured from the Electricity Generating Station and -local industries will be compressed and then transported (via the export pipeline) for secure storage within the Endurance saline aquifer located 145 kilometres offshore from Teesside under the North Sea. The export pipeline has the capacity to carry up to 10Mt of CO₂ per annum. The Proposed Development will therefore make a significant contribution toward the UK reaching its greenhouse gas emissions target by 2050.

2.2 The Applicants

- 2.2.1 NZT encompasses proposals to both decarbonise electricity generation and a cluster of carbon intensive industries on Teesside. In line with the CCUS business models published by BEIS in December 2020, there will be separate entities who will be responsible for:
- electricity generation with post-combustion carbon capture (including the gas, water and electricity connections);
 - CO₂ gathering (from industrial emitters), CO₂ compression and CO₂ export and storage; and
 - industrial (including hydrogen production) carbon capture and connections to the CO₂ gathering network.

2.2.2 The entities are set out in **Table 2.1** below:

Table 2.1: NZT Entities

Onshore works scope	Partnership	NZT Entity	Within the scope of the DCO Application?
Electricity Generating Station with post-combustion carbon capture (including the gas, water and electricity connections)	bp*, Eni, and Equinor and Total	Net Zero Teesside Power Limited	Yes
CO ₂ gathering network, CO ₂ compression and the onshore section of CO ₂ export pipeline	bp*, Eni, Equinor, National Grid, Shell and Total	Net Zero North Sea Storage Limited	Yes
Industrial and hydrogen production carbon capture and connection to the CO ₂ gathering network	Individual industrial emitters	N/A	No

*Operator on behalf of the relevant Partnership

2.2.3 NZT is being promoted by Net Zero Teesside Power Limited ('NZT Power') and Net Zero North Sea Storage Limited ('NZNS Storage'). NZT Power and NZNS Storage (together the Applicants for the purposes of the DCO Application) have been incorporated on behalf of bp as operator of the two Partnerships.

2.2.4 The electricity generation with post-combustion carbon capture Partnership comprises bp, ~~Eni, and Equinor and Total~~, with bp leading as operator. NZT Power will be responsible for the Proposed Development in so far as it relates to the construction, operation and eventual decommissioning of the Electricity Generating Station together with its carbon capture plant (both within the scope of the DCO Application).

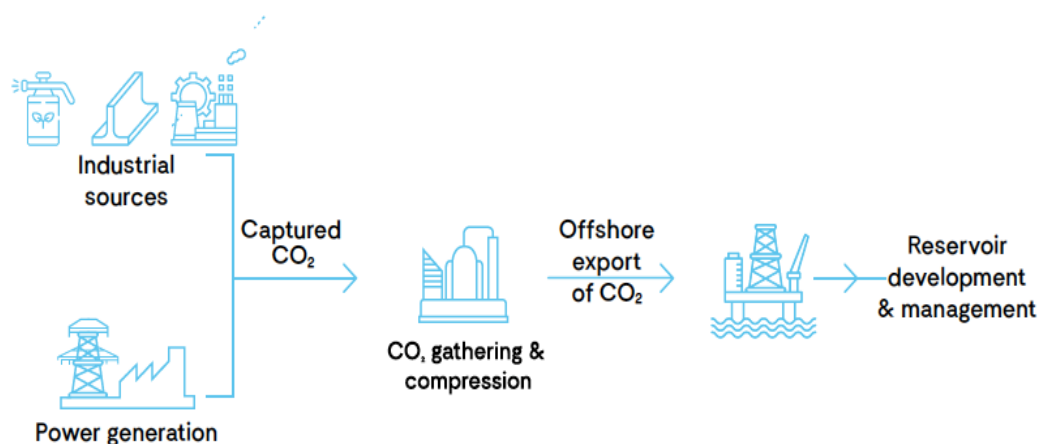
2.2.5 The CO₂ gathering network, CO₂ compression and onshore section of CO₂ export pipeline Partnership comprises bp, Eni, Equinor, National Grid, Shell and Total, with bp leading as operator. NZNS Storage will be responsible for the Proposed Development in so far as it relates to the construction, operation and eventual decommissioning of the equipment required for the high-pressure compression of CO₂ from the electricity generating station and industrial emitters via the CO₂ gathering network and the onshore section of the CO₂ export pipeline (these are all within the scope of the DCO Application).

2.2.6 NZNS Storage will also be responsible for the offshore elements of NZT, comprising the offshore section of the CO₂ export pipeline (below Mean Low Water Springs ('MLWS')) to a suitable offshore geological CO₂ storage site under the North Sea, CO₂ injection wells and associated infrastructure. The offshore elements of NZT (with the exception of the gas and CO₂ pipeline crossings of the River Tees and the water outfall from the Electricity Generating Station) do not form part of the DCO Application.

2.3 What is Carbon Capture, Usage and Storage?

2.3.1 Carbon Capture, Usage and Storage ('CCUS') is a process that removes CO₂ emissions at source, for example emissions from an Electricity Generating Station or industrial installation, and then compresses the CO₂ so that it can be safely transported to secure underground storage sites. It is then injected into layer of solid rock filled with interconnected pores where the CO₂ becomes trapped and locked in place, preventing it from being released into the atmosphere. **Figure 2.1.2** below shows what is involved in the process.

Figure 2.1.1: CCUS Process



2.3.2 The technologies used in CCUS are proven and have been used safely across the World for many years. Storage sites are located several kilometres underground and are subject to stringent tests to ensure that they are geologically suitable. In the UK, it is expected that the storage sites will be located offshore, in areas such as the North Sea.

2.3.3 CCUS is one of a number of technologies that are crucial to reducing CO₂ emissions and combatting global warming. The UK Government has committed to achieving 'Net Zero' in terms of greenhouse gas emissions by 2050. This is a legally binding target.

2.4 The Site

2.4.1 The Site lies within the administrative boundaries of both Redcar and Cleveland Borough Council and Stockton-on-Tees Borough Council. It also partly lies within the boundary of the Teesworks area that is controlled by the STDC.

2.4.2 Most of the Site lies within the administrative area of Redcar and Cleveland Borough Council, although parts of Site (for the Electricity Generating Station's gas supply connection to the National Transmission System for gas and the CO₂ gathering network) cross the River Tees into the administrative area of Stockton-on-Tees Borough Council. At this location, the River Tees is tidal. In addition, there are elements of the Site which extend into South Gare, Coatham Sands and the North Sea. Those sections of the Site that are below MLWS are outside the jurisdiction of either local authority being part of the UK marine area.

2.4.3 The Site extends to approximately ~~462~~304 hectares ('ha') in area. Much of it comprises previously developed (including part of the former Redcar Steel Works Site) and existing industrial land, some of which was reclaimed from the Tees Estuary in the late C19th -and during the C20th. The Site is relatively flat and low-lying and sits at a level of between sea level and approximately ~~4 and 12~~9 metres Above Ordnance Datum ('AOD'). The area surrounding the Site is largely characterised by industrial and commercial uses, although there are open areas of land to the north in the form of South Gare and Coatham Sands, which are used for recreational purposes and that are of nature conservation importance.

2.4.4 A more detailed description of the Site and its surroundings is provided at Chapter 3 'Description of the Existing Environment' in the Environmental Statement ('ES') Volume I (Document Ref. 6.2).

2.5 The Proposed Development

2.5.1 The Proposed Development will work by capturing CO₂ from the Electricity Generating Station in addition to a cluster of local industries on Teesside and transporting it via a CO₂ export pipeline to the Endurance saline aquifer under the North Sea. The Proposed Development will initially capture and transport up to 4Mt of CO₂ per annum, although the CO₂ export pipeline has the capacity to accommodate up to 10Mt of CO₂ per annum thereby allowing for future expansion.

2.5.2 The Proposed Development comprises the following elements:

- a combined cycle gas turbine ('CCGT') Electricity Generating Station with an electrical output of between 750 and 860 megawatts and post-combustion carbon capture plant;

- cooling water, gas and electricity grid connections and infrastructure for the Electricity Generating Station;
- a CO₂ gathering network (including connections under the tidal River Tees) to collect and transport the captured CO₂ from industrial emitters to a CO₂ compressor station (the industrial emitters using the gathering network will be responsible for consenting their own carbon capture plant and connections to the gathering network);
- a high-pressure CO₂ compressor station to receive and compress the captured CO₂ from the Electricity Generating Station and gathering network before it is transported offshore; and
- a dense phase CO₂ export pipeline for the onward transport of the captured and compressed CO₂ to the Endurance saline aquifer under the North Sea.

2.5.3 The Electricity Generating Station, its post-combustion carbon capture plant and the CO₂ compressor station will be located on part of the STDC Teesworks area (on part of the former Redcar Steel Works Site). The CO₂ export pipeline will also start in this location before heading offshore. The Electricity Generating Station connections and the CO₂ gathering network will require corridors of land within both Redcar and Stockton-on-Tees, including crossings beneath the River Tees.

2.5.4 All of the above elements are included in the scope of the DCO Application, with the exception of the CO₂ export pipeline, where only the onshore section of pipeline above MLWS is included. The CO₂ export pipeline below MLWS and the CO₂ storage site under the North Sea (the Endurance saline aquifer) will be the subject of separate consent applications, including under the Petroleum Act 1998 and the Energy Act 2008. These applications will be supported by an Offshore Environmental Statement.

2.5.5 The ancillary development required in connection with and subsidiary to the above elements of the Proposed Development is detailed in Schedule 1 of the draft DCO (Document Ref. 2.1). A more detailed description of the Proposed Development is provided at Schedule 1 'Authorised Development' of the draft DCO and Chapter 4 'The Proposed Development' in ES Volume I (Document Ref. 6.2) and the areas within which each of the main elements of the Proposed Development are to be built are denoted by the coloured and hatched areas on the Works Plans (Document Ref. 4.4).

2.6 The Purpose and Structure of this Document

2.6.1 The purpose of this document is to meet the requirements of Regulation 6(1)(a)(i) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which requires the Applicant to provide a statement setting out who will be responsible for designing and building the proposed gas connection to Low-Carbon Electricity Generating Station..

2.6.2 The purpose of this document is to also meet the requirements of Regulation 6(4) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure)

Regulations 2009, which requires the Applicant to provide certain details of pipelines forming part of the Proposed Development.

2.6.3 The document is structured as follows:

- Section 3 – Sets out the proposed gas pipeline, including the route and points of connection;
- Section 4 – Outlines contractual agreements relevant to the Option being taken forward;
- Section 5 – Provides details on the design-build responsibilities;
- Section 6 – Outlines land ownership in respect of the land required for connection to the network;
- Section 7 – Provides information on the consent required for the connection works; and
- Section 8 – Provides the summary and conclusions to the Statement.

3.0 PROPOSED GAS PIPELINE ROUTE AND CONNECTION OPTIONS

- 3.1.1 At this stage in the project development and design, ~~a~~the final definitive route for the gas pipeline ~~cannot yet be~~has not been determined. However, the corridor that it will run in has been selected and a requirement has been included in Schedule 2 of the DCO that the route must be selected and approved by the planning authorities before development commences. The pipeline will be up to 600 mm in diameter and installed within a nominally 35 m wide construction corridor.
- ~~3.1.2~~ The natural gas (fuel) supply for the Proposed Development ~~would~~will be connected from a new gas receiving station at the Low-Carbon Electricity Generating Station (Work No. 1) at the PCC Site. The supply point for ~~each of the possible gas supply systems~~ outlined in this Section 3.0 (Work No. 2 including 2A and 2B) ~~would~~will be to the National Grid Gas ('NGG') gas transmission infrastructure from a new Above Ground Installation at Seal Sands (proposed AGI) connected to the existing disused Sembcorp Gas Pipeline and and via one or more of the following routes/systems:
- ~~• New Build Option 1 (Gas Supply System N): below ground new pipeline from an Above Ground Installation (proposed AGI) at Seal Sands through an existing pipeline corridor to Navigator Terminals (or alternatively below ground new pipeline from a proposed new AGI connecting to the existing Trafigura gas pipeline at Navigator Terminals) and then beneath the River Tees in a new micro-bored tunnel direct to the Teesworks site, along the Teesworks Spine Road to the gas receiving station on the PCC Site; and~~
 - ~~•~~3.1.2 Sembcorp pipeline Tie-In Option 2 (Gas Supply System S): a new (proposed new AGI) connecting to the Sembcorp Gas Pipeline at nearby the NWL Bran Sands WWTP. Gas will then be routed and then via a new below ground new pipeline constructed northwards from the Bran Sands AGI to the gas receiving station on the PCC Site using a combination of both open cut and HDD trenchless ~~from a proposed new AGI connecting to the existing Sembcorp gas pipeline at Bran Sands~~techniques as required to cross existing infrastructure. ~~northwards from the Bran Sands AGI to the gas receiving station on the PCC Site.~~
- 3.1.3 Subject to commercial agreement(s) with NGG and/or other gas suppliers, natural gas will be supplied via one or more of the Gas Supply Systems described in this Section 3.0 via new or existing tie-ins to the National Transmission System ('NTS') gas transmission network.
- 3.1.4 Commercial discussions regarding gas supplies and tie-in to TGPP and/or CATS are ongoing and these will inform decisions regarding primary, secondary and tertiary supply/ies and the main source of gas supply to the Electricity Generating Station, and the back-up supply/ies.
- 3.1.5 The route of the Gas Supply Systems described in this Section 3.0 are shown on the Gas Supply Gas Connection Plans (Document Ref. 4.7).
- 3.1.6 Environmental effects associated with the construction of the three potential Gas Supply Systems described in this Section 3.0 ~~are~~ assessed as part of the

Environmental Impact Assessment, which is reported in the ES (Document Refs. 6.2 to 6.4).

4.0 CONTRACTUAL AGREEMENTS

- 4.1.1 In 2020 NGG was engaged to carry out a concept design study and ramp rate pre-study. This has concluded that there are no identified concerns to making available the required gas capacity at the proposed NGG connection point and that a ramp rate study is not required.
- 4.1.2 Capacity is reserved by the Applicants entering into a Planning and Advanced Reservation of Capacity Agreement (PARCA). To date the Applicants have not applied for or entered into a PARCA to reserve any network capacity.
- 4.1.3 It is agreed that the Applicants will enter into a Network Exit Agreement (NExA) with NGG following the construction process and prior to the flow of any gas through the Gas Connection.
- 4.1.4 It is agreed that the Applicants will need to sign a Gas Construction Agreement and agree to National Grid Standard Conditions of Contract for the Gas Connection.
- 4.1.5 The gas connection works on the Gas Supply Systems described in ~~this~~ section 3.0 and applicable routes shown on Figure 1 will be carried out by NGG and other specialist contractor(s) employed by the Applicants.

5.0 RESPONSIBILITIES FOR DESIGNING AND BUILDING THE GAS CONNECTION

5.1 Design

- 5.1.1 The Applicants will select the Gas Supply System(s) from those described in this section 3.0 and their chosen ('EPC') contractor(s) will undertake the detailed design, engineering and construction of the selected Gas Supply System.
- 5.1.2 The detailed design of the Gas Connection will be secured by DCO Requirement No. 2 in Schedule 2 of the DCO (Document Ref. 2.1).

5.2 Build

- 5.2.1 The chosen gas connection route will be constructed by qualified contractor(s), with tie-in and connection works coordinated with NGG or other pipeline operators. The construction of the Minimum Offtake Connection ('MOC') from the existing NGG AGI ~~for Option 1~~ at Seal Sands will be undertaken by an NGG approved contractor. The construction of the MOC will require stripping and storing soil/made ground and excavation to approximately 1 m below the depth of the existing gas main along a length of approximately 12 m (6 m either side of the connection point).
- 5.2.2 ~~For both of the options a~~ concrete pad and supports for the existing gas main either side of the connection point will then be installed together with a new 'tee' piece and construction valve. The existing gas main will then be drilled using specialist pressure drilling equipment (whilst the gas main is in operation), and the construction valve will be closed until the new connection pipeline is completed.
- 5.2.3 The construction of the contractor's compound adjacent to the AGI will require excavation of a trench up to the interface with the AGI compound to allow installation of a swan neck to bring the pipework above ground for the Applicants' compound, and installation of valves and pipework, the Pipeline Inline Gauging ('pig') trap, and electrical and telemetry equipment. Following installation of below ground infrastructure, the area will be backfilled, and excess soils will be used in the landscaping of the compound perimeter.
- 5.2.4 With the exception of ~~the Tees Crossing (see below) and other special crossings, the majority of~~ the new gas pipeline connecting the AGI at Bran Sands to the Low Carbon Electricity Generating Station (Work No. 1) will be constructed using an open-cut method. These works will generally be as follows:
- fencing off works area and fit safety signage;
 - stripping and storing of topsoil;
 - facilitating a working area of around 35 m to allow for temporary trackway, welding and soils storage;
 - excavation of a trench;

- pipe laid (welding pipe sections together at grade level (pipe stringing), within approximately 1.2 m below ground level; and
 - testing the pipe integrity, re-instating land drainage, and then backfilling subsoil, reinstating topsoil and re-planting to the original state as required.
- 5.2.5 The corridor working width required for open cut pipeline construction is generally around 35 m. This is the minimum working width that is required to facilitate ease of construction. This width allows topsoil and spoil to be excavated and stored adjacent to the point of generation, stringing and welding of sections of pipe, access along the route and laying of the pipe within the trench prior to backfilling.
- 5.2.6 Access arrangements during construction of the pipeline and AGI are presented in Chapter 5: Construction and Programme Management of ES Volume I (Document Ref. 6.2) and impacts on local roads are considered in Chapter 16: Transport and Traffic of ES Volume I (Document Ref. 6.2). Access to the corridor during construction will be at defined points, using defined routes and appropriate signposting.
- 5.2.7 The construction of the gas connection is expected to take up to twelve months dependent on routeing. All works would be undertaken in accordance with the measures outlined in a Construction Environmental Management Plan ('CEMP') to be prepared by the contractor.
- 5.2.8 The Gas Supply Systems' pipeline will encounter barriers that will need to be crossed using 'special crossings'. At this stage in the pipeline design, the exact pipeline route and construction method has yet to be determined. However, the expected methods for the special crossings identified on the pipeline routes are outlined in Table 5.1 below and presented in Figure 1 in Appendix 1.

Table 5.1: Special Crossings on the Gas Connection Corridor

Crossing Name	Grid Reference	Description	Type	Existing/Upgraded/New
Gas Supply System N (National Gas Grid and Trafigura Options)				
GC1	454670, 524730	Tees Crossing	Tunnel	New
Gas Supply System N (National Gas Grid Option Only)				
GC2	454150, 524670	Minor road and pipeline (Navigator Terminals)	Open Cut	New
GC3	453980, 524660	Minor Road (Navigator Terminals)	Auger Bore	New
GC4	453960, 524670	Minor Road (Navigator Terminals)	Auger Bore	New
GC5	453940, 524680	Pipeline (Navigator Terminals)	Auger Bore	New

Crossing Name	Grid Reference	Description	Type	Existing/Upgraded/New
GC6	453910, 524690	Minor Road (Navigator Terminals)	Auger Bore	New
GC7	453750, 524450	Minor Road (Seal Sands)	Open Cut	New
GC8	453700, 524360	Minor Road (Seal Sands)	Open Cut	New
GC9	453240, 524110	Minor Road (Seal Sands)	Open Cut	New
GC10	452230, 524110	Minor Road (Seal Sands)	Open Cut	New
Gas Supply System N (Sembcorp Option Only)				
GC11	457051, 524623 457050, 524620	Blue Main (Teesworks)	Trenchless	New
GC12	456998, 524489 457000, 524480	Railway x 2 (Teesworks)	Trenchless	New
GC13	456971, 524360 456970, 524360	York Potash Conveyor	Trenchless	New
GC14	456919, 524174 456920, 524170	CATS Pipeline	Auger Bore	New
GC15	456696, 523754 456710, 523750	Minor Rd (x2), Pipelines (x2 – including Breagh)	Trenchless	New

River Tees Trenchless Crossings

~~5.2.9 For Option 1 above, the preferred option for crossing the River Tees is using a Micro-Bored Tunnel (MBT). A specific area will need to be used to facilitate the construction of the MBT across the River Tees, additional land will also be temporarily required either side of the river to allow for movement of additional plant.~~

~~5.2.10 Boring of the MBT will require an area in the Navigator Terminal area to be prepared to allow excavation of a shaft (depth TBC). The shaft spoil will be stored ready for backfilling and restoration following works completion into the shaft. The shaft itself will accept the MTB drill head machine. This head will self-propel along a design trajectory beneath the Tees to surfacing at a specific point on a pre-constructed arrival ramp (located on the south side of the Tees). The MTB machine will return the tunnel cuttings along its own internal conveyor, where they shall be removed of by road for re-use or disposal at a suitably permitted facility.~~

~~5.2.11 As part of the tunnelling process the MTB drill head will self install concrete rings into the tunnel to ensure integrity of the tunnel bore. On completion, the MTB drill head will be removed from the tunnel. A pre welded and tested pipe will be pulled from the exit point on the south side of the Tees into the tunnel across its full length. Once fully installed, works at the shaft end will commence to install a single length of pre welded and tested pipe between the Tees crossing pipe in the base of the shaft up to ground level. Once the weld is confirmed as good, then works will commence to reinstate the removed spoil into the shaft, and remediate the land at the entrance to the tunnel on the south side. The drill contractor will then demobilise from site. Pre hydrotesting of the pipe string will be needed before insertion into the micro tunnel, and the hydrotest water will need disposing to the site outfall.~~

~~5.2.12 The MBT is likely to take approximately 9 to 12 months to construct. Temporary works compounds will be required at the drilling launch site and the drilling exit site.~~

~~5.2.13~~ **5.2.9** Trenchless technologies may also be needed for other crossing points (e.g. other minor watercourses, transport infrastructure) and land required for such crossings and the Tees crossing has been allowed for within the Site boundary and has been incorporated into the Gas Connection Corridor shown on the Gas Connection Plans (Document Ref. 4.7).

5.3 Operation and Maintenance

5.3.1 The Applicants will be responsible for the operation and maintenance of all on-site plant and apparatus (including Gas Supply Systems on the PCC Site) during operation of the Proposed Development.

5.3.2 Pipeline inspection plans will be prepared and if required, PIG launching and receiving facilities for intelligent pigging operations will be considered.

5.3.3 NGG and the other Gas Supply System owners will be responsible for the operation and maintenance of their pipelines and equipment.

6.0 LAND REQUIREMENTS

- 6.1.1 The Applicant has agreed the necessary land rights within parts of the Site, as described in the Statement of Reasons (Document Ref. 3.2).
- 6.1.2 In respect of the land not yet within the Applicants' control, they will continue to negotiate with the respective landowners to seek to agree rights of construction and access. In the event that such agreements cannot be reached with any party, the draft DCO (Document Ref. 2.1) includes powers for the Applicants– and persons authorised on their behalf, to enter on to the land ~~within the~~ relevant to the gas connection (work nos 2A and 2B) as Proposed Gas Connection Corridor shown on the Works Plans (Work No. 2 - Document Ref. No. 4.4) for all purposes connected with the laying, installation and operation of the gas pipeline and associated apparatus. In addition, the powers include the right to maintain the pipeline and associated apparatus. A permanent easement of ~~14~~ 12 m width will be required along the length of the gas pipeline.
- 6.1.3 Temporary rights are also sought for the purposes of construction, where the Applicants do not require the freehold interest in land or permanent rights.
- 6.1.4 Work No. 2 (inclusive of 2A and 2B) in Schedule 1 to the draft DCO (Document Ref. 2.1) cover the construction and operation of the gas pipeline, AGI, connection point and associated infrastructure, including cathodic protection posts, marker posts and underground electrical supply cables, transformers and control systems cables, telemetry systems, valves and flanges.

7.0 CONSENTS REQUIRED

- 7.1.1 The Proposed Gas Connection works are included within the DCO Application, and therefore no separate planning permission is required. The Proposed Gas Connection works (Work No. 2) in Schedule 1 of the DCO (Document Ref. 2.1) cover the construction and operation of the gas connections. Environmental impacts associated with the gas connection works are assessed in the topic chapters in the ES (Document Refs. 6.2-6.3).
- 7.1.2 Article 8 of the draft DCO would allow the Applicant to transfer the benefit of the provisions of the DCO to another entity. This would allow for the transfer of powers to NG (as appropriate, such as in relation to the AGI) in order for them to construct, operate and maintain the gas connection works.

8.0 CONCLUSIONS

- 8.1.1 This Gas Connection and Pipeline Statement has been prepared to satisfy the requirements of The Infrastructure Planning Applications: Prescribed Forms and Procedures Regulations 2009 Regulation 6(1)(a)(i) and 6(4) and to demonstrate that there is no reason why gas connection will not be possible for the Proposed Development.
- 8.1.2 The Statement has demonstrated that the Proposed Gas Connection and associated Gas Supply System pipelines included within the Application (and assessed as part of the associated Environmental Impact Assessment reported in the ES (Document Refs. 6.1 to 6.4)) are feasible, that the necessary agreements are, or will be, secured, and appropriate powers are included in the draft DCO to facilitate the delivery of the Gas Connection.

Figure 1: Pipeline Route Options & Crossing Points

APPENDIX A – PIPELINES STATEMENT

Table A.1 below lists the following information required by The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 6(4) in relation to the pipelines to be constructed as part of the Proposed Development:

- a) the name of the proposed pipeline;
- b) the owner of the proposed pipeline;
- c) the start and end point of the proposed pipeline;
- d) the length of the proposed pipeline in kilometres;
- e) the external diameter in millimetres of the proposed pipeline;
- f) what will be conveyed by the proposed pipeline; and
- g) whether the grant of any rights in land or consents to road or river crossing works are required and if so whether they can be obtained by agreement.

Table A.1: Pipelines required for the Proposed Development

<u>Name</u>	<u>Owner</u>	<u>Start</u>	<u>End</u>	<u>Length (km)</u>	<u>Nominal diameter (mm)</u>	<u>What will be conveyed?</u>	<u>Land Rights:</u>	
							<u>Required for crossings?</u>	<u>Can be reached by agreement?</u>
<u>Natural Gas Connection</u>	<u>NZT Power</u>	<u>AGI connecting to Sencorp Pipeline, Bran Sands</u>	<u>PCC Site</u>	<u>2.11.9</u>	<u>600</u>	<u>Natural Gas</u>	<u>Yes</u>	<u>See note below¹</u>
<u>CO₂ Gathering Network</u>	<u>NZ NS Storage</u>	<u>CF Fertilisers, Billingham</u>	<u>PCC Site</u>	<u>13.0</u>	<u>550</u>	<u>CO₂ (medium pressure)</u>	<u>Yes</u>	
<u>CO₂ Export</u>	<u>NZ NS Storage</u>	<u>PCC Site</u>	<u>Tees Bay²</u>	<u>1.9</u>	<u>800</u>	<u>CO₂ (high pressure, dense phase)</u>	<u>Yes</u>	
<u>Water Supply</u>	<u>NZT Power</u>	<u>Northumbrian Water Metering House</u>	<u>PCC Site</u>	<u>1.2</u>	<u>1,100</u>	<u>Raw water</u>	<u>Yes</u>	
<u>Water Discharge</u>	<u>NZT Power</u>	<u>PCC Site</u>	<u>Tees Bay</u>	<u>1.7</u>	<u>3,000</u>	<u>Treated wastewater</u>	<u>Yes</u>	

¹ The Applicants are in negotiations with affected land owners to acquire the necessary rights for the pipelines by agreement. However compulsory acquisition powers are sought in the DCO, including the power to acquire rights, to ensure that the delivery of the Proposed Development can be secured. Further details are provided in the Statement of Reasons (Document Ref. 3.2). Works within streets and river crossings are authorised by powers in the Draft DCO (Document Ref. 2.1), and details of consents required are set out in Other Consents and Licences (Document Ref. 5.10).

² linking to off-shore pipeline to Endurance Store – separately consented

<u>Name</u>	<u>Owner</u>	<u>Start</u>	<u>End</u>	<u>Length (km)</u>	<u>Nominal diameter (mm)</u>	<u>What will be conveyed?</u>	<u>Land Rights:</u>	
							<u>Required for crossings?</u>	<u>Can be reached by agreement?</u>
<u>Water Discharge</u>	<u>NZT Power</u>	<u>PCC Site</u>	<u>NWL Bran Sands</u>	<u>1.9</u>	<u>3400</u>	<u>Wastewater /treated wastewater</u>	<u>Yes</u>	