Net Zero Teesside Project

Planning Inspectorate Reference: EN010103

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: 9.39 Applicants' response to Rule 17 request for further information dated 16 September 2022.

Planning Act 2008

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

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GLOSSARY

Abbreviation	Description
AOD	Above ordnance datum
AS-	Additional Submissions
BAT	Best Available Techniques
BEIS	The Department for Business, Energy and Industrial Strategy
CCGT	Combined Cycle Gas Turbine
CCUS	Carbon Capture, Utilisation and Storage
CEMP	Construction and Environmental Management Plan
CTMP	Construction Traffic Management Plan
CO_2	Carbon dioxide
CPO	Compulsory Purchase Order
dB	Decibels
DCO	Development Consent Order
dDCO	Draft Development Consent Order
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
ES	Environmental Statement
ETS	Emissions Trading Scheme
ExA	Examining Authority
FEED	Front end engineering and design
FRA	Flood Risk Assessment
Ha	Hectares
HDD	Horizontal Directional Drilling
HIA	Hydrogeological Impact Appraisal
HoT	Heads of Terms
kV	Kilovolts
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
Mt	Million tonnes

NATS	National Air Traffic Services
NSIP	Nationally Significant Infrastructure Project
NWL	Northumbria Water Lagoon
NZT	The Net Zero Teesside Project
NZT Power	Net Zero Teesside Power Limited
NZNS Storage	Net Zero North Sea Storage Limited
PA 2008	Planning Act 2008
PCC	Power Capture and Compressor Site
PDA-	Procedural Deadline A
PINS	Planning Inspectorate
RCBC	Redcar and Cleveland Borough Council
RR	Relevant Representation
SBC	Stockton Borough Council
SEL	Sound Exposure Level
SPA	Special Protection Areas
SoCG	Statement of Common Ground
SoS	Secretary of State
STDC	South Tees Development Corporation
SuDS	Sustainable urban drainage systems
UXO	Unexploded Ordnance
WFD	Water Framework Directive

CONTENTS

1.0 INTRODUCTION

1.1 Overview

1.1.1 This response to the Examining Authority's Rule 17 Request for Further Information dated 16 September 2022 (Document Ref. 9.39) has been prepared on behalf of Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited (the 'Applicants'). It relates to the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Business, Energy and Industrial Strategy ('BEIS'), under Section 37 of 'The Planning Act 2008' (the 'PA 2008') for the Net Zero Teesside Project (the 'Proposed Development').

1.1.2 The Application was submitted to the SoS on 19 July 2021 and was accepted for Examination on 16 August 2021. Change requests made by the Applicants in respect of the Application were accepted into the Examination by the Examining Authority on 6 May 2022 and 6 September 2022.

1.2 Description of the Proposed Development

1.2.1 The Proposed Development will work by capturing CO_2 from a new the gas-fired power station in addition to a cluster of local industries on Teesside and transporting it via a CO_2 transport pipeline to the Endurance saline aquifer under the North Sea. The Proposed Development will initially capture and transport up to 4Mt of CO_2 per annum, although the CO_2 transport pipeline has the capacity to accommodate up to 10Mt of CO_2 per annum thereby allowing for future expansion.

1.2.2 The Proposed Development comprises the following elements:

- **Work Number ('Work No.') 1** – a Combined Cycle Gas Turbine electricity generating station with an electrical output of up to 860 megawatts and post-combustion carbon capture plant (the **'Low Carbon Electricity Generating Station'**);
- **Work No. 2** – a natural gas supply connection and Above Ground Installations ('AGIs') (the **'Gas Connection Corridor'**);
- **Work No. 3** – an electricity grid connection (the **'Electrical Connection'**);
- **Work No. 4** – water supply connections (the **'Water Supply Connection Corridor'**);
- **Work No. 5** – waste water disposal connections (the **'Water Discharge Connection Corridor'**);
- **Work No. 6** – a CO_2 gathering network (including connections under the tidal River Tees) to collect and transport the captured CO_2 from industrial emitters (the industrial emitters using the gathering network will be responsible for consenting their own carbon capture plant and connections to the gathering network) (the **'CO_2 Gathering Network Corridor'**);

- **Work No. 7** – a high-pressure CO_2 compressor station to receive and compress the captured CO_2 from the Low Carbon Electricity Generating Station and the CO_2 Gathering Network before it is transported offshore (the **'HP Compressor Station'**);
- **Work No. 8** – a dense phase CO_2 export pipeline for the onward transport of the captured and compressed CO_2 to the Endurance saline aquifer under the North Sea (the **'CO_2 Export Pipeline'**);
- **Work No. 9** – temporary construction and laydown areas, including contractor compounds, construction staff welfare and vehicle parking for use during the construction phase of the Proposed Development (the **'Laydown Areas'**); and
- **Work No. 10** – access and highway improvement works (the **'Access and Highway Works'**).

1.2.3 The electricity generating station, its post-combustion carbon capture plant and the CO_2 compressor station will be located on part of the South Tees Development Corporation (STDC) Teesworks area (on part of the former Redcar Steel Works Site). The CO_2 export pipeline will also start in this location before heading offshore. The generating station connections and the CO_2 gathering network will require corridors of land within the administrative areas of both Redcar and Cleveland and Stockton-on-Tees Borough Councils, including crossings beneath the River Tees.

1.3 The Purpose and Structure of this document

1.3.1 The purpose of this document is to provide a response to the two questions posed by the Examining Authority in their letter dated 16 September2022 [PD-019]

1.3.2 The document is structured as follows:

- Section 2 contains the response to question 1 parts i) and ii).
- Section 3 contains the response to part 2 parts ii), iii), iv) and v).

2.0 RESPONSE TO QUESTION 1

2.1.1 This section of the document provides a response to Question 1 which states:

"Appendix 24C of the Environmental Statement, Statement of Combined Effects [AS-032], provided a summary of the potential effects from both the Proposed Development (onshore works) and the associated offshore transport and storage infrastructure. In addition, the Applicants provided an Assessment of the Impact of the Offshore Elements of the NEP Project on Hornsea Project Four (HP4) (Appendix 1 of REP4-030).

i) Provide an update on whether or not the ExA has a comprehensive and up-to date list of all the environmental effects from the NEP/ Endurance store, including those that potentially do not interact with effects from the NZT onshore works.

ii) Are there any additional combined or cumulative effects that the ExA should be aware of?"

2.2 Applicants' response to Question 1 part i)

2.2.1 The offshore Environmental Statement (offshore ES) required under The Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020 is at an advanced drafting stage. The Applicants have compared the details of potential effects included in Appendix 24C of the Environmental Statement, Statement of Combined Effects [AS-032] against the draft offshore ES and no additional environmental effects from planned activities have been identified.

2.2.2 It is standard practice for an offshore ES to include consideration of accidental events. In this regard the draft ES considers unplanned leakage of CO_2 from the pipeline system, injection wells or the Endurance Store and unplanned leakage of brine from the Endurance Store. Such unplanned events are mitigated by the offshore engineering design and are hence considered highly unlikely to occur. After considering the low likelihood of the impact occurring, the magnitude of potential impacts and the sensitivity of the potential receptors, the overall impact has been assessed as **not significant** in the offshore ES at this stage.

2.2.3 With the addition of the above information on accidental events, the Applicants can confirm that the ExA has a comprehensive and up to date list of all the environmental effects from the NEP/Endurance store, including those that potentially do not interact with effects from the NZT onshore works.

2.3 Applicants' response to Question 1 part ii)

2.3.1 The offshore ES will also contain a cumulative and in-combination impact assessment that considers interactions between the NEP Project, the Proposed Development and also other committed developments such as Hornsea Project 4.

2.3.2 The Applicants have compared the details of the combined effects included in Appendix 24C of the Environmental Statement, Statement of Combined Effects [AS-

032] against the draft offshore ES and no additional combined or cumulative effects of the Proposed Development with the planned NEP project have been identified.

2.3.3 The offshore ES will consider whether there are any combined or cumulative effects of the NEP project with other committed developments and these will be evaluated as part of the offshore consenting process for the NEP project.

2.3.4 As such the Applicants can confirm that there are no additional combined or cumulative effects that the ExA should be aware of.

3.0 RESPONSE TO QUESTION 2

3.1.1 This section of the document provides a response to Question 2 which states:

ClientEarth [RR-004, REP2-079, REP4-033, REP5-030, REP6-129] has requested that the DCO is amended to ensure that 90% of carbon emissions from the generating station are captured. ClientEarth's D6 submission [REP6-129] states that 'there is currently no indication that the environmental permit will require that the generating station is operated only when the carbon capture plant is in operation, at a particular capture rate or otherwise'. The Applicants state that the rate of carbon capture is regulated by the environmental permitting regime (most recently at D7 [REP7-009]). Paragraph 4.10.3 of the NPS EN-1 advises that an ExA should not duplicate other regulatory regimes. It is therefore important that the ExA understands in detail how the generating station and carbon capture plant are likely to be permitted.

i) The EA states that the permit will require the capture plant to be built to achieve a specified capture rate (BAT is currently 95%) [REP5-032]. ClientEarth has noted that 'As the Environment Agency has confirmed above, rather than imposing a minimum level of emissions abatement on the generation station, the environmental permit will impose BAT capture rate requirements on the capture plant' [REP6-129]. The Applicants state that the permit applies to both the generating station and carbon capture plant as a whole [REP7-009]. Please would the EA:

- Clarify whether the BAT rate of 95% carbon capture applies to emissions from the CCGT or to the carbon capture plant only?

- If the BAT carbon capture rate is only applicable to the carbon capture plant, please explain how emissions from the CCGT, when run in unabated mode, would be regulated?

ii) The Applicants have stated that carbon capture will be measured by weight (w/w) of carbon dioxide emitted from the CCGT [APP-086]. The Applicants and the EA are requested to explain:

- Over what time period is this calculated?

- Does it apply to all emissions over this period, including those produced when the CCGT is run in unabated mode?

iii) ClientEarth notes that the permit would only require the carbon capture plant to have the capability of achieving 95% but would not necessarily require it to deliver this [REP6-129]. The EA and the Applicants are asked whether this interpretation is correct? Is so, please confirm how an actual capture rate of 95% is secured in the permit.

iv) The EA states that the UK Emissions Trading Scheme Monitoring, Reporting & Verification would be used to verify performance [REP5-032]. The EA and Applicants are asked to explain:

- How this scheme ensures that a minimum level of carbon capture is secured?

- How this scheme interacts with the permit?

v) ClientEarth's proposed requirement states that 'at least 90% of the total carbon emissions generated by the power plant must be captured at all times during the power plant's commercial operation' [RR-004]. The Applicants suggest that the plant may need to run in unabated mode for testing and maintenance [REP2-016].

- Does ClientEarth consider that these activities would be a 'commercial operation'?

- Could the Applicants explain why the CCGT is able or unable to run at a minimum of 90% carbon capture rate at all times?

- Could the EA explain under what circumstances the permit would allow the CCGT to run in unabated mode?

3.2 Applicants' response to Question 2 part i)

3.2.1 The Applicants note that the carbon capture plant on its own will not generate carbon dioxide emissions. The rate of carbon dioxide capture therefore applies to the capture of carbon dioxide from the CCGT flue gas; this is achieved through the use of the carbon capture plant.

3.3 Applicants' response to Question 2 part ii)

3.3.1 The rate of carbon dioxide capture would be measured continuously and reported annually. Emissions reporting would cover both unabated and abated emissions over the period. Emissions monitoring requirements will be specified in the environmental permit and annual reporting will be required under the UK Emissions Trading Scheme.

3.4 Applicants' response to Question 2 part iii)

3.4.1 The actual capture rate to be achieved by the plant would be specified in the permit based on demonstration of the use of Best Available Techniques. The current BAT guidance specifies that the plant must achieve a capture rate of 95% and therefore as a new plant that would be the rate applicable to the Proposed Development.

3.5 Applicants' response to Question 2 part iv)

3.5.1 The UK Emissions Trading Scheme Monitoring, Reporting and Verification requirements will not in themselves ensure that a minimum level of carbon capture is secured. This is the legal mechanism by which the operator is obliged to provide monitoring data to the Environment Agency. This data will be reviewed by the Environment Agency as the regulator of the environmental permit and any departure from conditions set within the permit would be identified. The EA typically would

issue a Corrective Action Report (CAR) request to the operator for justification of any departure from permitted conditions. Enforcement action could result from non-compliance with permit conditions.

3.5.2 While not directly relevant to the permitting and reporting obligations, it is also of relevance that the UK Emissions Trading Scheme sets a price for the cost per tonne of carbon emissions that further commercially incentivises the capture of carbon from the generating station.

3.6 Applicants' response to Question 2 part v)

3.6.1 The plant may need to operate in unabated mode if for example the transport and storage network had a technical issue such that it could not receive the captured carbon dioxide from the generating station. Also, the captured carbon dioxide will need to meet a set specification for entry into the transmission and storage network, based on pressure, water content, oxygen content and other parameters; at start-up it may be that such a specification cannot initially be reached and therefore the carbon dioxide may not be able to be captured.

3.6.2 Over long term operation (annual operation) it is expected that such scenarios will be limited such that the average capture rate can achieve the 90% threshold. However, for short periods this may not be possible, particularly when recognising this is a First Of A Kind development. The Applicants' position therefore remains that the CCGT is unable to run at a minimum of 90% carbon capture rate at all times, and that a DCO requirement to this effect is not reasonable or necessary and fails the policy tests for the imposition of conditions.