

Net Zero Teesside Project

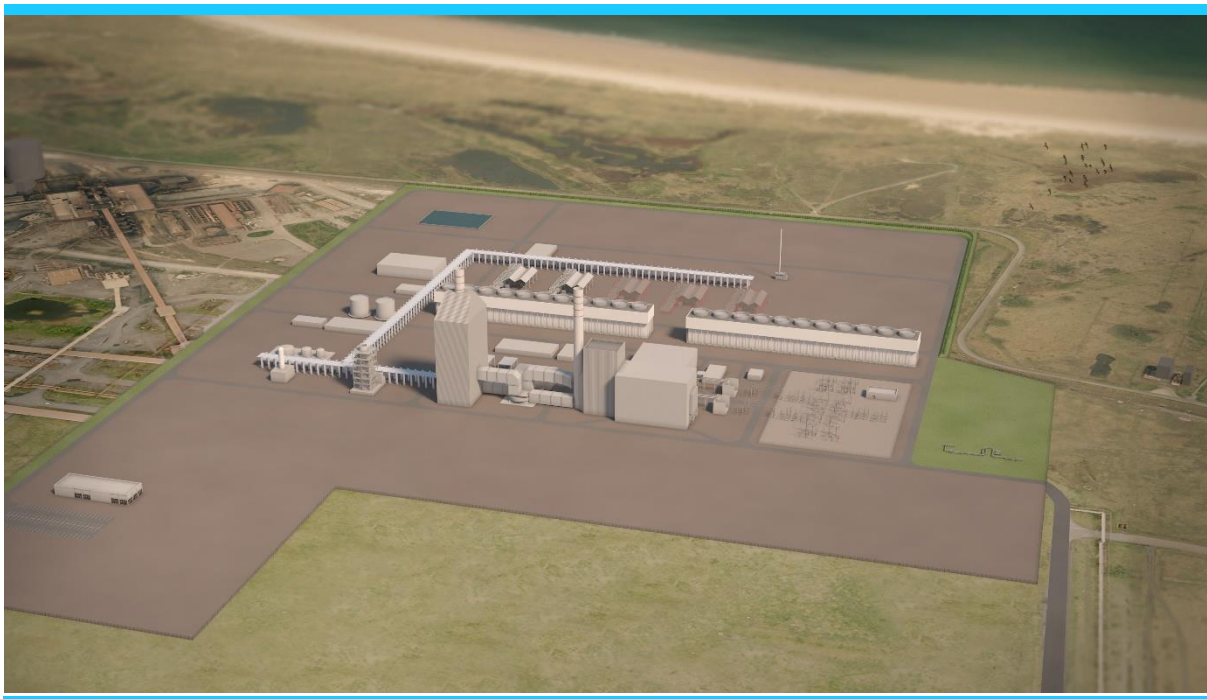
Planning Inspectorate Reference: EN010103

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: 9.29 Cumulative Onshore and Offshore GHG assessment

Planning Act 2008



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

Date: August 2022

DOCUMENT HISTORY

Document Ref	9.29		
Revision	1.0		
Author	Ian Campbell, AECOM (IC)		
Signed	IC	Date	23 August 2022
Approved By	Jack Bottomley (JB)		
Signed	JB	Date	23 August 2022
Document Owner	AECOM		

GLOSSARY

Abbreviation	Description
BEIS	The Department for Business, Energy and Industrial Strategy
CCGT	Combined Cycle Gas Turbine
CCUS	Carbon Capture, Utilisation and Storage
CO ₂	Carbon dioxide
CPO	Compulsory Purchase Order
DCO	Development Consent Order
DPA	Dispatchable Power Agreement
dDCO	Draft Development Consent Order
EIA	Environmental Impact Assessment
ExA	Examining Authority
FEED	Front end engineering and design
Flowlines	Pipelines that connect a single wellhead to a manifold or process equipment. In a larger well field, multiple flowlines may connect individual wells to a manifold.
GHG	Greenhouse Gas
HDD	Horizontal Directional Drilling
HoT	Heads of Terms
IEMA	Institute of Environmental Management & Assessment
kV	Kilovolts
LOF	Life of Operation Forecast
LoO	Life of Operations
Mt	Million tonnes
NSIP	Nationally Significant Infrastructure Project
NEP	Northern Endurance Partnership
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
P&C	Power & Consumption Plant
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
T&S	Transport and Storage
WSI	Written Scheme of Investigation
ZCH	Zero Carbon Humber

CONTENTS

1.0	Introduction	1
2.0	CC.1.5 Approach and Scope of cumulative NZT GHG Assessment.....	4
3.0	Cumulative GreenHouse Gas (GHG) assessment	7
4.0	Conclusion.....	14

1.0 INTRODUCTION

1.1 Overview

- 1.1.1 This document (Document Ref. 9.29) contains a response to Question CC.1.5. submitted as part of the Examining Authority's First Written Question (ExQ1) [**PD-012**] and 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 (hereafter referred to in this document as the 'Proposed NZT Development').
- 1.1.2 The Application was submitted to the SoS on 19 July 2021 and was accepted for Examination on 16 August 2021. A change request made by the Applicants in respect of the Application was accepted into the Examination by the Examining Authority on 6 May 2022.
- 1.1.3 The Applicants are seeking development consent for the construction, operation and decommissioning of a Carbon Capture Usage and Storage (CCUS) project, comprising a gas-fired Combined Cycle Gas Turbine (CCGT) plant together with the equipment required for the capture and compression of carbon dioxide (CO₂) emissions from the generating station. Captured CO₂ from power generation and industrial sources will be compressed and exported for offshore geological storage under the North Sea. Refer to ES Vol I Chapter 4 Proposed Development [**APP-086**] for further information. The Proposed NZT Development will initially capture and transport up to 4Mt of CO₂ per annum, although the CO₂ transport pipeline has the capacity to accommodate up to 10Mt of CO₂ per annum thereby allowing for future expansion.

1.2 Description of the Proposed Development

- 1.2.1 The Proposed NZT 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** – wastewater disposal connections (the '**Water Discharge Connection Corridor**');

- **Work No. 6** – a CO₂ gathering network (including connections under the tidal River Tees) to collect and transport the captured CO₂ 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 ‘**CO₂ Gathering Network Corridor**’);
- **Work No. 7** – a high-pressure CO₂ compressor station to receive and compress the captured CO₂ from the Low Carbon Electricity Generating Station and the CO₂ Gathering Network before it is transported offshore (the ‘**HP Compressor Station**’);
- **Work No. 8** – 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 (the ‘**CO₂ 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**’).

1.2.2 The electricity generating station, its post-combustion carbon capture plant and the CO₂ compressor station will be located on part of the South Tees Development Corporation’s (‘STDC’) Teesworks development site (on part of the former Redcar Steel Works Site). The CO₂ export pipeline will also start in this location before heading offshore to the Endurance store, located approximately 145 km to the south-east in the Southern North Sea, approximately 60 km east of Flamborough Head.

1.2.3 The Northern Endurance Partnership (NEP) are currently preparing separate applications for the development of the offshore Endurance store and associated CO₂ transportation infrastructure (hereafter referred to in this document as ‘Proposed NEP Offshore Development’). The Proposed NEP Offshore Development will consist of connecting pipelines from the Endurance store to both the Proposed NZT Development and a similar but separate development around the Humber Estuary referred to as Zero Carbon Humber (ZCH) (hereafter referred to in this document as the ‘Proposed ZCH Development’). The purpose of the Proposed NEP Offshore Development is to allow for carbon emissions from a range of emitters from across Teesside and the Humber, including NZT and ZCH, to be transported and stored offshore in the Endurance store.

1.3 Purpose of this Document

1.3.1 The purpose of this document is to provide a response to the Question CC.1.5 in ExQ1, which asks:

“Is it intended to undertake a cumulative impact assessment of life-cycle carbon emissions for the Proposed Development and NZT project as a whole? If not, please justify why this is not being done”.

- 1.3.2 As part of the Applicants' Response to the Examining Authority's Written Questions [REP2-016], the Applicants responded to confirm they would "provide information on the carbon emissions of the Proposed Development and the offshore transport and storage works".
- 1.3.3 To frame this information, this document provides the cumulative Greenhouse Gas (GHG) assessment for the Proposed Development and the offshore works being developed under separate consents by the Northern Endurance Partnership (hereafter referred to in this document as 'Proposed NEP Offshore Development').

2.0 CC.1.5 APPROACH AND SCOPE OF CUMULATIVE NZT GHG ASSESSMENT

2.1 Overview

- 2.1.1 The submitted ES Vol I Chapter 21 Climate [APP-103] contains the GHG assessment for the Proposed NZT Development, the scope of which includes a proposed combined cycle gas turbine (CCGT) electricity generating station with carbon capture, a CO₂ Gathering Network and High Pressure Compressor Station, and development associated with these, which for the purposes of assessment, encompassed the Proposed Development, which was described in Chapter 4 Proposed Development [APP-086].
- 2.1.2 To respond to CC.1.5, the GHG emissions from the Proposed NEP Development have also been collated and assessed. These emissions are summarised as:
- the GHG emissions for the Teesside element of the Proposed NEP Offshore Development (including the connection into the compressor station at the power plant) based on information held by the Applicants available at the time of the assessment.
- 2.1.3 Table 2.1 identifies the data sources which have been used to compile the GHG emissions from each of the developments and complete the cumulative assessment.

Table 2-1 GHG Assessment Data Sources

Data Source	Data Description
Net Zero Teesside – Onshore Development	
Net Zero Teesside Power Ltd & Net Zero North Sea Storage Ltd ES Vol I Chapter 21 Climate Change [APP-103]	ES Vol I Chapter 21 Climate Change ¹ Climate chapter covering the DCO application for NZT.
Desktop review of project information provided by the Applicants.	Net Zero Teesside The UK’s first decarbonised industrial cluster ² Net Zero Teesside About NZT Power ³
Northern Endurance Partnership – Offshore Development	
NEP Scoping report for the offshore environmental impact assessment	Scoping Report covering offshore Atmospheric Emissions, Rev 02, dated 18/05/2022
NEP Offshore early draft Environmental Statement for the Northern Endurance	Early draft Environmental Statement covering offshore development.

¹ <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010103/EN010103-000905-NZT%20DCO%206.2.21%20ES%20Vol%20I%20Chapter%2021%20Climate%20Change.pdf>



Partnership Atmospheric Emissions by BP Exploration Operating Company Ltd.	
NZT & NEP Life of Operation GHG Emissions Forecast - Define Phase	Indicative calculations provided by NEP.

2.2 Assumptions & limitations

2.2.1 The Proposed Development modelling assumptions are based on those in the ES Vol I Chapter 21 Climate Change [APP-103].

2.2.2 To inform the assessment of the Proposed Development and the Proposed NEP Offshore Development, the following key assumptions and limitations have been identified (based on the NEP Reference case, dated 06/02/2022):

- The Transport and Storage (T&S) availability and the yearly carbon dioxide storage rates for the Teesside power station was used to calculate the unavailability emissions.
- Fugitive emissions data for upstream natural gas leakage and downstream CO₂ leakage were provided by the Applicants; suitable factors were applied to allow all fugitive emissions to be expressed in terms of carbon dioxide equivalence.
- The electrical power required for the Proposed NZT Development was taken from the Electrical Load list/Discipline engineers and multiplied by the assumed number of hours' downtime for the power plant when the compressor would need to consume power imported from the national grid. These running hours were combined with the projected grid carbon intensity over the design life of the scheme to estimate the associated GHG emissions.
- For the calculation of drilling emissions at the Endurance Store, a worst-case assumed duration of operations and the emissions from diesel powered generators on a typical North Sea Jack-up Drilling rig were used. The same assumptions were used for calculating the GHG emissions from well interventions (e.g. workovers).
- Cumulative emissions data presented within this note excludes any emissions associated with the construction or operation of the Humberside element of the Proposed NEP Offshore Development.
- The assessment does not take account of third party emitters, which will eventually be connected to the CO₂ Gathering Network because of uncertainty relating to the number of connections and their rates of CO₂ emissions. Estimates of carbon stored from 3rd party industrial emitters in the Teesside cluster, along with estimated unavailability rates associated with the T&S system for these 3rd party emitters have been excluded because they are outside the scope of the Proposed Development.
- The emissions resulting from the Humberside part of the Proposed NEP Offshore Development have been disaggregated from the calculations presented, there is more information regarding this process in paragraphs 3.2.3 and 3.2.5 of Section 3.2 (Offshore Greenhouse Gas Emissions)

-
- 2.2.3 The future baseline scenario, i.e. a counterfactual in which the Proposed NZT Development does not take place, assumes the continued operation of a similar CCGT power station that is not fitted with carbon capture and storage technology. Avoided emissions shown within this cumulative assessment are therefore shown as negative relative to this counterfactual.
- 2.2.4 In absolute terms, however, the direct emissions from the combustion of natural gas at the power station, and the indirect emissions from the supply of this gas, continue to represent emissions to the atmosphere. The carbon capture system within the Proposed NZT Development avoids the emission of a substantial mass of carbon dioxide that would otherwise be released, but considering the boundaries explained in 2.2.2 above i.e. excluding third-party emitters, it does not remove carbon dioxide from the atmosphere.

3.0 CUMULATIVE GREENHOUSE GAS ASSESSMENT

3.1 Overview

3.1.1 GHG emissions from the proposed generating station as part of the Proposed NZT Development are calculated based on a single CCGT unit fitted with post-combustion carbon capture technology that will be designed to capture 95% of carbon emissions however a 90% capture rate has been assumed as a worst-case scenario. Direct operational emissions values in Table 3-1 show values after carbon capture, i.e. these figures represent the worst-case 10% of emissions that are not abated.

Table 3-1: Onshore Greenhouse Gas Emissions

Onshore GHG emissions	Activity	GHG Emissions (tCO ₂ e)
Construction	Embodied carbon of material and products	64,170
	Material and product transport	2,974
	Electricity use	176
	Onsite fuel use	3,755
	Waste disposal	65
	Workers commuting	4,873
	Total construction emissions over construction duration	76,012
	Annualised	19,003
Operation	Electricity usage	11,779 ⁴
	Uncaptured direct emissions from combustion of natural gas.	5,929,380
	Well to Tank emissions from upstream supply of natural gas.	10,101,668
	Waste disposal	308,892
	Workers commuting	7,922
	Materials	392,506
	Materials transport	30,037
	Total operation over 25-year period	16,782,184
	Annualised	671,287
	Total Onshore GHG Emissions	16,858,196

3.1.2 For the purposes of this cumulative assessment, well-to-tank (WTT) fuels emission conversion factors have been applied to account for the upstream Scope 3 (indirect)

⁴ Updated from ES to reflect grid decarbonisation

emissions associated with the extraction, refining and transportation of the natural gas to be consumed in the power station over its operational lifetime. The WTT factors also account for fugitive upstream emissions of methane. A conservative assessment estimates WTT emissions to be approximately 0.40 MtCO_{2e} per annum over the 25-year lifetime of the onshore development. The inclusion of WTT emissions does not affect the overall significance of the cumulative GHG assessment.

3.2 Offshore Greenhouse Gas Emissions

- 3.2.1 GHG emissions from the construction, operation and decommissioning of the CO₂ pipeline from the NZT Proposed Development to the Endurance store as part of the Proposed NEP Offshore Development have been calculated.
- 3.2.2 The GHG calculations have been obtained from the EIA Scoping Report and an early draft of the Environmental Statement for Proposed NEP Offshore Development and further estimates provided by NEP. Data for the Proposed NEP Offshore Development provided by NEP also included information relating to the construction and decommissioning of the CO₂ pipeline for the Humberside element of the Proposed NEP Offshore Development, however, this information has been excluded for the purposes of this cumulative assessment.
- 3.2.3 Where data provided by NEP specified emissions relating to the Humberside element of the Proposed NEP Offshore Development, these were excluded. Where the provided data related to general offshore works for the installation of both the Humberside and Teesside pipelines, emissions for the Teesside element were pro-rated on the basis of pipeline lengths. The Teesside pipeline has a length of 145km, while the Humberside pipeline is 103km long. On this basis, the Teesside pipeline is 58.5% of total pipeline length, so this percentage was used to estimate the Teesside share of pipeline construction emissions.
- 3.2.4 All emissions relating to the construction and installation of power and communications cables have been included in the cumulative assessment, as schematics provided by the Applicant indicate that these cables are linked to the Teesside element of the Proposed NEP Offshore Development.
- 3.2.5 Where data provided related to the drilling of wells or installation of manifolds and flow lines, these emissions were split between the Teesside and Humberside elements on a 50:50 basis.
- 3.2.6 A GHG Assessment for offshore construction and operation was undertaken, based on information provided to the Applicants. The calculations are based on information available at the time of producing the cumulative GHG assessment.

Table 3-2: Offshore Greenhouse Gas Emissions estimates

Offshore GHG emissions		Activity	GHG Emissions (tCO _{2e})
Offshore Construction		Seabed infrastructure	702

Offshore GHG emissions		Activity	GHG Emissions (tCO ₂ e)
	Embodied carbon of materials & products	Flow Lines	3,500
		Teesside Pipeline	126,400
		Power & communications cables	4,100
		Wells	1,950
		Total embodied carbon from material & fabrication processes	136,652
	Transport of materials to site		14,892
	Construction activities	Vessel emissions	172,852
		Well water washing	303
		Total construction activities GHG emissions	173,155
	Total Offshore Construction emissions (3 years)		
Offshore Operations	Vessel emissions	28,196	
	Fugitive emissions	2,792	
Total Operational emissions (25 years)			30,988
Decommissioning	Vessel emissions	1,721	
Total Decommissioning			1,721
Total Offshore GHG emissions			357,408

3.3 Carbon Capture data (Emissions avoided)

- 3.3.1 The data above relate to the construction and operation of the Proposed Development and the Proposed NEP Offshore Development, including residual emissions (after carbon capture) from the NZT power station.
- 3.3.2 A cumulative assessment must also take account of the mass of carbon dioxide to be captured and stored in the offshore repository. In ES Vol Chapter 21 Climate Change [APP-103], it was estimated that the worst-case scenario (based on a conservative 90% carbon capture rate) avoids the emissions of 2.1 million tonnes of CO₂ per year, with a total of 53.3 million tonnes over the 25-year design life of the CCGT plant. A higher carbon capture rate would lead to the avoidance of more emissions.
- 3.3.3 Data provided includes estimates of emissions caused by the temporary unavailability of the carbon capture Transport and Storage (T&S) system. Examples of such T&S unavailability include the failure of the offshore power cable, leading to

unplanned T&S downtime resulting in the forced venting of carbon dioxide that would otherwise be captured and stored.

3.3.4 The Applicants estimate overall availability of the T&S system for the NZT power station at 93.5%. i.e. it may not be possible to capture 6.5% of emissions. The T&S unavailability is assessed separately from the assumed worst case carbon capture rate for the power station.

3.4 Emissions from 3rd Party Emitters

3.4.1 The Applicants have also provided estimates of carbon stored from 3rd party industrial emitters in the Teesside cluster, along with estimated unavailability rates associated with the T&S system for these 3rd party emitters. Overall availability of the T&S system for the 3rd party emitters is estimated at 90%.

3.4.2 These data do not form part of this cumulative assessment as they are outside the scope of the Proposed NZT Development. They do represent additional potential carbon storage figures, when these 3rd party emitters connect to the T&S system.

3.4.3 When 3rd party emitters connect to the T&S system, there would be additional emissions from the construction and operation of the carbon capture plants that would be required at the site of each emitter. No construction and operations data are available for any additional networks to facilitate 3rd party connections into the Teesside carbon capture system.

3.4.4 Table 3-3 shows carbon captured and stored from the NZT power station and potential estimates of carbon that could be captured and stored from 3rd party emitters within the Teesside cluster. It also shows potential emissions from the unavailability of the T&S system.

3.4.5 For the purposes of the cumulative assessment, data showing carbon storage (i.e. avoided emissions) are expressed as negative numbers.

Table 3-3: Carbon Capture Data (avoided emissions)

Development	Phase	GHG Emissions (tCO ₂ e)
NZT Power station	Carbon captured	-53,364,418
	T&S unavailability	3,592,523
	Overall carbon storage	-49,771,895
<i>Teesside 3rd party industrial emitters (not included in cumulative assessment)</i>	<i>Carbon captured</i>	<i>-45,000,000</i>
	<i>T&S unavailability</i>	<i>2,632,500</i>
	<i>Overall carbon storage</i>	<i>-42,367,500</i>

3.5 Cumulative Greenhouse Gas summary

- 3.5.1 The following is a cumulative GHG assessment of the Proposed NZT Development combined with the construction and operation of the Proposed NEP Offshore Development.
- 3.5.2 The offshore emissions have been calculated using the assumption of a 3-year construction period and a 25-year operational period.

Table 3-4: Summary of cumulative emissions

Development	Phase	GHG Emissions (tCO ₂ e)
Onshore Construction and Operation	Construction (4 years)	76,012
	Operation (25 years)	16,782,184
	Total Onshore	16,858,196
Offshore Construction and Operation	Construction (3 years)	324,699
	Operation (25 years)	30,988
	Decommissioning	1,721
	Total Offshore	357,408
Carbon capture (<i>NZT only</i>)	Carbon captured	-53,364,418
	T&S unavailability	3,592,523
	Overall carbon storage	-49,771,895
Whole life GHG emissions		-32,556,291

3.6 Assessment of significance

- 3.6.1 The assessment of significance of GHG emissions from the cumulative onshore and offshore developments has been undertaken in accordance with the IEMA guidance *Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd edition)* published in early 2022. This revised addition of the IEMA guidance places greater emphasis on mitigation and whether emissions from a project align with the UK's net zero target by 2050. The IEMA guidelines states:

'The crux of significance is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.'

- 3.6.2 The 2022 guidance goes on to state:

‘For the avoidance of doubt IEMA’s position that all emissions contribute to climate change has not changed ... Major or moderate adverse effects and beneficial effects are considered to be significant. Minor adverse and negligible effects are not considered to be significant.’

3.6.3 Table 3-5 below summarises the IEMA guidance around how to apply significance criteria for GHG impact of projects.

Table 3-5: IEMA Criteria for assessing the significance of GHG emissions

Significance Criteria	Description	Significance
Major adverse	Projects GHG impacts not mitigated or only compliant with ‘do-minimum’ standards.	Significant adverse
Moderate adverse	Projects GHG impacts are partially mitigated and partially meet applicable existing or emerging policy goals for projects of this type.	
Minor adverse	The projects GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for a project of this type.	Not significant
Negligible	The projects GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such as radical decarbonisation or net zero achieved well before 2050.	Not significant
Beneficial	The project’s net GHG impacts are below zero and it causes a reduction in atmospheric concentration, whether directly or indirectly compared to the without project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.	Significant beneficial

3.6.4 The overall assessment of significance of a development may be affected by whether it is viewed in isolation, or relative to a counterfactual scenario in which the development does not go ahead.

3.6.5 When viewed in isolation, the Proposed NZT Development will result in an increase in carbon dioxide emissions to the atmosphere, but as stated within the IEMA guidance:

‘The project’s GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for a project of this type’

-
- 3.6.6 In this narrow context, the GHG impacts of the Proposed NZT Development could be assessed as Minor Adverse, which would be Not Significant.
- 3.6.7 But when compared against an alternative counterfactual scenario in which a similar CCGT operates without carbon capture and storage, the Proposed NZT Development does cause:
- ‘A reduction in atmospheric concentration, whether directly or indirectly compared to the without project baseline.’*
- 3.6.8 Within this broader context, the Proposed NZT Development can be assessed as having a GHG impact that is Beneficial and Significant, provided that the without project baseline includes a similar CCGT operating without carbon capture and storage.
- 3.6.9 There is a strong argument for applying this broader approach to assessing significance, particularly when applied to electricity generation capacity. The process for generating, transmitting and distributing electricity is an inherently interconnected system. And the transition to a net-zero future explicitly requires the replacement of existing high-carbon emissions sources with lower emissions sources that deliver a similar function in terms of dispatchable electricity generation that can provide security of supply.
- 3.6.10 It is reasonable therefore to view the Proposed NZT Development not as an isolated, standalone piece of generating capacity but as an element within an interconnected system that will be part of a wider move to replace existing, unabated high-carbon electricity generation installations.
- 3.6.11 Applying this wider, holistic viewpoint leads the overall GHG impact of the Proposed NZT Development to be assessed as **Beneficial** and **Significant**.
- 3.6.12 The future abatement of emissions from 3rd party emitters that will be connected to the Teesside carbon capture and storage system, as well as from any emitters in the Humber region that may be connected to the wider carbon capture system in future, has not been included in this cumulative assessment, as these emitters fall outside the boundary of the DCO application. But as and when 3rd party emitters are connected and achieve substantial abatement of existing emissions through carbon capture technology, this would result in a further avoidance of emissions beyond that already achieved from the NZT power station. This in turn would reinforce the overall assessment of GHG significance as Beneficial and Significant.

4.0 CONCLUSIONS

- 4.1.1 The Proposed NZT Development plays a key role in the decarbonisation of industry to allow the UK to achieve net zero emissions by 2050. The Proposed NZT Development will utilise offshore infrastructure as part of the wider East Coast Cluster, along with the separate Proposed ZCH Development, which aims to decarbonise industrial operations using carbon capture with storage in the North Sea.
- 4.1.2 In summary, cumulatively the onshore and offshore developments achieve emissions mitigation going beyond reduction trajectories for the UK to meet net zero the Proposed Development and can be assessed as having a **Beneficial impact** that is **significant** in terms of GHG emissions.