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: 5.3 – Planning Statement

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

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
AGI	Above Ground Installation - installations used to support the safe and efficient operation of a pipeline; above ground installations are needed at the start and end of a cross-country pipeline and at intervals along the route.
ALARP	As Low As Reasonably Practicable - a term often used in the regulation and management of safety-critical and safety-involved systems. The ALARP principle is that the residual risk shall be reduced as far as reasonably practicable.
AOD	Above Ordnance Datum - a spot height (an exact point on a map) with an elevation recorded beside it that represents its height above a given datum.
APFP Regulations	The Applications: Prescribed Forms and Procedure Regulations 2009.
Applicants	Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited
BECCS	Bioenergy with Carbon Capture and Storage
BEIS	Department of Business, Energy and Industrial Strategy - a department of the UK Government.
CCC	The Climate Change Committee – an independent body providing advice to government on building a low-carbon economy and preparing for climate change.
CCGT	Combined Cycle Gas Turbine - a highly efficient form of energy generation technology. An assembly of heat engines work in tandem using the same source of heat to convert it into mechanical energy which drives electrical

	generators and consequently generates electricity.
CCP	Carbon Capture Plant - equipment used to capture carbon dioxide emissions from a power plant or industrial installation.
CCR	Carbon Capture Ready - space to be set aside to accommodate future carbon capture equipment.
CCS	Carbon Capture and Storage - technology that can capture carbon dioxide emissions produced from the use of fossil fuels in electricity generation and industrial processes.
CCUS	Carbon Capture, Usage and Storage - is group of technologies designed to reduce the amount of carbon dioxide released into the atmosphere from coal and gas power stations as well as heavy industry including cement and steel production. Once captured, the carbon dioxide can be either re-used in various products, such as cement or plastics (usage), or stored in geological formations deep underground (storage).
CCZ	Coastal Community Zone - part of the South Tees Area/Teesworks area.
CEMP	Construction Environment Management Plan - a plan to outline how a construction project will avoid, minimise or mitigate effects on the environment and surrounding area.
CGS	The Clean Growth Strategy - sets out the aims of the UK Government to deliver increased economic growth while reducing carbon emissions.
CHP	Combined Heat and Power - a process that captures and utilises the heat that is a by-product of the electricity generation process.
CO_2	Carbon Dioxide - an inorganic chemical compound with a wide range of commercial uses.
DAS	Design and Access Statement - a document detailing the design of a proposed development including the design process that has been followed.
DCO	Development Consent Order - a Development Consent Order made by the relevant Secretary of State pursuant to The Planning Act 2008 to authorise a Nationally Significant Infrastructure Project. A DCO can incorporate or remove the

	need for a range of consents which would otherwise be required for a development. A DCO can also include rights of compulsory acquisition.
DPD	Development Plan Documents - local planning policy documents.
EIA	Environmental Impact Assessment - a term used for the assessment of environmental consequences (positive or negative) of a plan, policy, program or project prior to the decision to move forward with the proposed action.
EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
EIIs	Energy intensive industries - an industry which heavily relies on energy inputs to operate.
EPA	The Environmental Protection Act 1990 - an Act of the Parliament of the United Kingdom that defines, within England, Wales and Scotland, the fundamental structure and authority for waste management and control of emissions into the environment.
ES	Environmental Statement - a report in which the process and results of an Environment Impact Assessment are documented.
ESC	Energy Systems Catapult - an organisation set up to accelerate the transformation of the UK's energy system.
ETI	Energy Technologies Institute - a UK based company formed from global industries and the UK Government.
EWP	The Energy White Paper - a policy paper on energy produced by the Department for Business, Energy and Industrial Strategy.
ExA	Examining Authority - an inspector or panel of inspectors responsible for examining a DCO application on behalf of the relevant Secretary of State.
FEED	Front End Engineering Design - engineering which comes after the conceptual design or feasibility study focusing on the technical requirements and estimated investment cost for the project.
FID	Final Investment Decision - a financial decision that needs to be made in order to proceed with a project.

FRA	Flood Risk Assessment - a document setting out how a development has taken account of the need to mitigate the risk of flooding.
GHG	Greenhouse Gas - atmospheric gases such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone, and water vapour that absorb and emit infrared radiation emitted by the Earth's surface, the atmosphere and clouds.
ha	Hectares - a metric unit of measurement for area. There are 10,000 square metres in a hectare. One hectare is equal to 2.471 acres.
NIP	National Infrastructure Plan - setting out government priorities for national infrastructure.
HP	High Pressure.
HRA	Habitats Regulations Assessment - the assessment of the impacts of implementing a plan or policy on a Natura 2000 site required under the Habitats Directive.
HRSG	Heat Recovery Steam Generator - an energy recovery heat exchanger that recovers heat from a hot gas stream. It produces steam that can be used in a process (cogeneration) or used to drive a steam turbine (combined cycle).
HSE	Health and Safety Executive - the body responsible for the encouragement, regulation and enforcement of workplace health, safety and welfare.
ICCI	In-combination Climate Change Impacts - the in-combination effects of a changing climate.
IDS	Industrial Decarbonisation Strategy – a policy paper produced by government on the decarbonisation of UK industry.
km	Kilometre - a metric unit of measurement for distance, equal to 1,000 metres.
kV	Kilovolts - a unit of electrical potential. There are 1,000 volts in a kilovolt.
LPA	Local Planning Authority - the planning department within the local authority where a development is situated.
m	Metre - a metric unit of measurement for length, equal to 100 centimetres.
MA&ND	Major Accidents and Natural Disasters - potentially significant effects of a development on the environment as a result of its vulnerability

	to, or introduction of, risks of major accidents and/or disasters.
MHCLG	Ministry of Housing, Communities & Local Government - department of the UK government.
MLWS	Mean Low Water Springs - the height of the mean low water springs is the average height obtained by the two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
mm	Millimetres - a metric unit of measurement for length. There are 1000 millimetres in a metre and 10 millimetres in a centimetre.
MMO	Marine Management Organisation - an executive, non-departmental body in the UK with the responsibility of licencing, regulating and planning marine activities in the seas around England so that they are carried out in a sustainable way.
MPS	Marine Policy Statement - the framework for preparing Marine Plans and taking decisions affecting the marine environment.
Mt	Million Tonnes - a metric unit of weight.
NE	Natural England - executive non-departmental public body constituted under the Natural Environment and Rural Communities Act 2006 (section 2(1)) to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.
NEIZ	North East Industrial Zone - part of the South Tees Area/Teesworks area.
NGET	National Grid Electricity Transmission Plc.
NIA 18	National Infrastructure Assessment 2018 - analyses the UK's long-term economic infrastructure needs, outlining a strategic vision over the next 30 years and setting out recommendations for how identified needs should be met.
NIC	National Infrastructure Commission - established in 2015 to provide independent, impartial advice on the UK's long-term infrastructure needs.
NIDP	National Infrastructure Delivery Plan - outlines how the government will support the delivery of

	key infrastructure projects and programmes between 2016 and 2021.
NIS	National Infrastructure Strategy - sets out the Government's plans to deliver an infrastructure revolution in the UK, while levelling the country up and achieving its net zero target by 2050.
NIZ	Northern Industrial Zone - part of the South Tees Area/Teesworks area.
NPPF	National Planning Policy Framework- a document setting out the Government's planning policies for England.
NPS	National Policy Statement - a statement produced by Government under the Planning Act 2008 providing the policy framework for Nationally Significant Infrastructure Projects. They include the Government's view of the need for and objectives for the development of Nationally Significant Infrastructure Projects in a particular sector such as energy and are used to determine applications for such development.
NSIP	Nationally Significant Infrastructure Project - defined by the Planning Act 2008 and covering projects relating to energy (including generating stations, electric lines and pipelines); transport (including trunk roads and motorways, airports, harbour facilities, railways and rail freight interchanges); water (dams and reservoirs, and the transfer of water resources); waste water treatment plants and hazardous waste facilities. These projects are only defined as nationally significant if they satisfy a statutory threshold in terms of their scale or effect.
NTS	National Transmission System for gas - the gas national grid used to transport natural gas around the UK.
NZNS Storage	Net Zero North Sea Storage Limited - one of the Applicants.
NZT	Net Zero Teesside - the name of the Proposed Development.
NZT Power	Net Zero Teesside Power Limited - one of the Applicants.
Order	The Net Zero Teesside Order - the name of the DCO for the Proposed Development.

PA 2008	The Planning Act 2008 - setting out the legislative regime for Nationally Significant Infrastructure Projects.
PCC Site	Power, Capture and Compression Site - the part of the Proposed Development Site that will accommodate the Electricity Generating Station, its Carbon Capture Plant and the High-Pressure Compressor Station.
PEI Report	The Preliminary Environmental Information Report - an initial statement of the main environmental information available for a study area.
PINS	The Planning Inspectorate - an executive agency of the Department for Communities and Local Government responsible for administering DCO applications on behalf of the relevant Secretary of State.
PPG	Planning Practice Guidance - supplements the National Planning Policy Framework and provides detailed planning guidance to local planning authorities and applicants in England.
Proposed Development	The Net Zero Teesside Project.
RBT	Redcar Bulk Terminal - a deep-water marine terminal situated on the South Bank of the River Tees on the North-East coast of the UK.
RCBC	Redcar and Cleveland Borough Council - the Local Planning Authority for part of the Site.
SAC	Special Areas of Conservation - High quality conservation sites that are protected under the European Union Habitats Directive, due to their contribution to conserving those habitat types that are considered to be most in need of conservation.
Site	The Proposed Development Site.
SoS	Secretary of State - the decision maker for DCO applications and head of a UK Government department.
SPA	Special Protection Area - strictly protected sites classified in accordance with article 4 of the EC birds directive. Special Protection Areas are Natura sites which are internationally important sites for the protection of threatened habitats and species.

SPD	Supplementary Planning Document - a document that supplements the policies contained in the Development Plan Documents that make up the statutory development plan for an area.
SSI	Sahaviriya Steel Industries - the former owner of part of the former Redcar Steel Works Site.
SSSI	Site of Special Scientific Interest - nationally designated Sites of Special Scientific Interest, an area designated for protection under the Wildlife and Countryside Act 1981 (as amended), due to its value as a wildlife and/or geological site.
STBC	Stockton-on-Tees Borough Council - the Local Planning Authority for part of the Site.
STDC	South Tees Development Corporation - a Mayoral Development Corporation responsible for approximately 400 hectares of land south of the River Tees in the borough of Redcar and Cleveland.
The Applicants	Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited.
UKCS	UK Continental Shelf.
WK3	Wheelabrator Kemsley K3.
WKN	Wheelabrator Kemsley North Waste-to-Energy Facility.

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1.0 EXECUTIVE SUMMARY

1.1.1 This Planning Statement has been prepared on behalf of Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited (the 'Applicants'). It forms part of 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, under Section 37 of 'The Planning Act 2008' (the 'PA 2008').

1.1.2 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'.

1.1.3 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'.

1.1.4 The Proposed Development will be the UK's first commercial scale, full chain Carbon Capture, Usage and Storage ('CCUS') project and will initially capture up to 4 million tonnes (Mt) of carbon dioxide (CO_2) 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 CO_2 pipeline network (a 'gathering network') for collecting CO_2 from a cluster of local industries on Teesside; a CO_2 compressor station (for the compression of the CO_2) and a CO_2 export pipeline.

1.1.5 The CO_2 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 CO_2 per annum. The Proposed Development will therefore make a significant contribution toward the UK reaching its greenhouse gas emissions target by 2050.

1.1.6 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 South Tees Development Corporation ('STDC'). The Site extends to approximately 462 hectares ('ha') in area.

1.1.7 Much of the Site comprises previously developed (including part of the former Redcar Steel Works Site) and existing industrial land. It is relatively flat and low-lying and sits at a level of between asea level and approximately 9 metres Above Ordnance Datum. 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 Dunes/Sands, which are used for recreational purposes and that are of nature conservation importance. The part of the Site that will accommodate the electricity generating station, its carbon capture plant and the CO_2 compressor station is referred to as the 'Power Capture and Compression' ('PCC') Site.

1.1.8 Under the PA 2008 regime, the policy framework for examining and determining applications for development consent is provided by National Policy Statements ('NPSs'). Section 5 of the PA 2008 allows the relevant SoS to designate NPSs setting out national policy in relation to the types of NSIPs listed at Section 14 of the PA 2008. A number of NPSs have been designated in relation to energy infrastructure (NPSs EN-1 to EN-6).

1.1.9 Section 104 of the PA 2008 requires the SoS to determine applications for NSIPs in accordance with the relevant NPSs (where these are in place) and appropriate marine policy documents (if any) having regard to any local impact report produced by the relevant local planning authority; any matters prescribed in relation to development of the description to which the application relates; and any other matters which the SoS thinks are both *"important and relevant"* to their decision. It is considered that in the case of the Proposed Development such matters include recent UK Government energy and climate change policy.

1.1.10 The primary purpose of this Planning Statement is to assist the Examining Authority and the SoS in their assessment of the Proposed Development by demonstrating how the Applicants have taken account of relevant planning policy, notably the NPS for energy infrastructure (which confirm the need for new electricity generating capacity) and the extent to which the Proposed Development complies with the policies within those NPSs, as well as any other matters that are important and relevant to the SoS's determination of the Application.

1.1.11 The Planning Statement also sets out the key benefits for the Proposed Development, including the 'need' for it in terms of decarbonising power and industry on Teesside, in addition to its likely significant adverse environmental effects/impacts. Where relevant the Planning Statement cross references or 'signposts' the relevant application documents that provide more detail on these matters.

1.1.12 The relevant energy NPSs and marine policy statements are considered at Section 4 of the Planning Statement. Part 3 of NPS EN-1 'The need for new nationally significant energy infrastructure projects' defines and sets out the 'need' for nationally significant energy infrastructure. Paragraph 3.1.1 states that the UK needs all types of energy infrastructure covered by the NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions. Paragraph 3.1.2 goes on to state that it is for industry to propose the type of energy infrastructure and that the Government does not consider it appropriate for planning policy to set targets for or limits on different technologies. Notably, paragraph 3.1.3 stresses that the SoS should assess applications for development consent for the

types of infrastructure covered by the energy NPSs *"…on the basis that the Government has demonstrated that there is a need for those types of infrastructure…"* (with the scale and urgency of that need being described in the relevant part of EN-1). Paragraph 3.1.4 confirms that the SoS should give substantial weight to the contribution that all projects would make toward satisfying this need when considering applications under the PA 2008. As such, EN-1 is clear that the need that exists for new energy infrastructure is not open to debate or interpretation.

1.1.13 Section 5 of the Planning Statement considers recent UK Government energy and climate change policy, notably the Clean Growth Strategy, the UK CCUS Deployment Pathway, the Prime Minister's Ten Point Plan and the Energy White Paper ('EWP'). These documents set out important Government objectives for decarbonising the power and industrial sectors in order to achieve the legally binding target of net zero by 2050 and are important and relevant considerations to be taken into account in determining the Application. The Proposed Development will make an important contribution toward the delivery of this policy.

1.1.14 Section 6 considers the conformity of the Proposed Development against the assessment principles, generic impacts and assessment and technology specific considerations of the relevant energy NPSs (EN-1, EN-2, EN-4 and EN-5). The Applicants' assessment has not identified any conflicts with NPS policy. Furthermore, Section 6 has demonstrated that there is no conflict between the Proposed Development and NPPF policy or the statutory development plan.

1.1.15 The Proposed Development will have a number of very clear and tangible benefits, which can be summarised as follows:

- The energy NPSs, in particular EN-1, confirm the urgent need that exists for developing new nationally significant energy infrastructure, including new gas-fired generating stations with carbon capture. The Proposed Development will provide dispatchable low carbon generating capacity that underpins the security of UK electricity supplies and overall grid stability as the deployment of intermittent renewables increases. EN-1 is clear that the SoS should assess applications for development consent on the basis that the need for new energy infrastructure and its scale and urgency has been proven and that substantial weight should be given to the contribution that all projects will make toward satisfying this need. Although the EWP includes a commitment to review the current suite of energy NPSs, while that review is undertaken, they remain relevant Government policy for the purposes of making decisions on energy NSIPs. The EWP also underlines the need for the energy infrastructure set out in EN-1. The need that exists for the Proposed Development is set out in detail within the Need Statement (Document Ref. 5.2).
- Recent UK energy and climate change policy has established clear objectives for decarbonising the power and industrial sectors and the transformation of the oil and gas sector in order to achieve the Government's legally binding commitment

to achieve net zero in terms of greenhouse gas emissions by 2050 while promoting economic growth and the development of new green industries. This policy is both *"important and relevant"* to decision-making in respect of the Proposed Development and should be afforded substantial weight. The Proposed Development will contribute to these objectives in a number of ways, including:

- Demonstrating power with CCS/CCUS at a commercial scale by the mid-2020s, which is aligned with the Government commitment to support the delivery of *"at least one power CCUS plant"* by 2030.
- Developing a CO_2 gathering network on Teesside that will underpin the establishment of a decarbonised industrial cluster by the mid-2020s by providing the necessary infrastructure to capture CO_2 emission from existing heavy industries with the area, helping to secure their long-term future and contribution to the economy.
- Providing infrastructure that will support the potential for the future large-scale manufacture of low carbon hydrogen on Teesside, acting as a driver for growth and jobs within the local and regional economy. Gas reforming (the use of natural gas to manufacture hydrogen) is likely to be the cheapest source of hydrogen, at least initially, and therefore being able to pair this with CCS/CCUS is critical to delivering low carbon hydrogen production.
- The Proposed Development will initially capture up to 4Mt CO_2 emissions per annum (Teesside alone generates 3.9Mt CO_2 per annum) but there will be scope to increase this to 10Mt CO_2 per annum in the future.
- In line with the Government's North Sea Deal, the Proposed Development will support the transformation of the oil and gas sector. The development of CCS/CCUS technologies will be able to draw upon the proven capabilities and skills within this sector, its existing infrastructure and private investment potential, thereby helping to support its supply chain and skilled workforce.

- The Proposed Development will have substantial benefits for the local and regional economy in terms of employment (direct and indirect) and supply chain opportunities. It is estimated that up to 2,440 net construction jobs (direct and indirect) would be generated per annum over the 48-month construction programme. Jobs during operation are estimated at up to 130 FTE (direct and indirect) with the majority filled by people from the local area. An employment skills and training plan will be implemented in order to maximise the local employment and training opportunities provided by the Proposed Development.
- The Proposed Development will bring back into use previously developed industrial land on Teesside and make a positive contribution to the regeneration of the Teesworks area.
- The Proposed Development will be Combined Heat and Power Ready and have the future potential to provide emerging development within the Teesworks area with heat, should viable opportunities be identified.

- The Proposed Development will also deliver landscape and biodiversity enhancements within the PCC Site and achieve biodiversity net gain.

1.1.16 Chapter 25 'Summary of Significant Effects' of ES Volume I, Table 25-1 (Document Ref. 6.2) summarises the significant environmental effects of the Proposed Development that have been identified, following implementation of the embedded mitigation or impact avoidance measures included within the design of the Proposed Development (as detailed in Chapters 8 to 24 of the ES, where relevant). Table 25-1 also summarises any additional mitigation measures that have been identified in the technical assessments contained in the ES.

1.1.17 Table 25-1 confirms that the Proposed Development will only result in a limited number of long-term permanent and direct effects after mitigation. These relate to a viewpoint from the England Coastal Path that runs adjacent to the PCC Site where there will be a moderate adverse (significant) effect in terms of visual impact on recreational users of the Coast Path from the presence of the buildings and structures at the PCC Site. The only other long-term, permanent, direct effect relates the employment generated by the Proposed Development during its operational stages, which is assessed as being a moderate beneficial (significant) effect.

1.1.18 Long-term, permanent and direct cumulative and combined effects are limited to a moderate adverse (significant) effect in terms of the visual impact on recreational users of the England Coast Path.

1.1.19 With regard to the visual impact on recreational users of the England Coast Path where it runs adjacent to the PCC Site, it is relevant to note that paragraph 2.65 of NPS EN-2 relating to fossil fuel electricity generation infrastructure, recognises that *"It is not possible to eliminate the visual impacts associated with a fossil fuel generating station."*

1.1.20 As with all development proposals, it is necessary to assess the Proposed Development in terms of its conformity and compliance with relevant policy and weigh the benefits and significant adverse effects against each other (the 'planning balance').

1.1.21 The Planning Statement demonstrates that there is no conflict between the Proposed Development and relevant policy, including marine policy, while it will have a number of very clear and substantial benefits – responding to the need for new low carbon electricity generation capacity, contributing toward the delivery of energy and climate change policy, employment, and regeneration, amongst others. In contrast, the long-term, permanent and direct significant effects of the Proposed Development are limited to a moderate adverse effect on users of the England Coast Path where it runs adjacent to the PCC Site. This limited impact does not outweigh the substantial benefits of the Proposed Development and EN-2 recognises that it will not always be possible to eliminate the visual impacts of such infrastructure.

1.1.22 In conclusion therefore, given the urgency of the need for new electricity generation capacity (as set out in NPS EN-1) and the importance of decarbonising the power and

industrial sectors in the UK to meet the legally binding target of Net Zero by 2050, it is considered that the benefits of the Proposed Development significantly outweigh the limited harm that would result from the effects identified above and that development consent should be granted.

2.0 INTRODUCTION

2.1 Overview

2.1.1 This Planning Statement (Document Ref. 5.3) has been prepared on behalf of Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited (the 'Applicants'). It forms part of 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, under Section 37 of 'The Planning Act 2008' (the 'PA 2008').

2.1.2 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'.

2.1.3 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').

2.1.4 The Proposed Development will be the UK's first commercial scale, full chain Carbon Capture, Usage and Storage ('CCUS') project and will initially capture up to 4 million tonnes (Mt) of carbon dioxide (CO_2) 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 CO_2 pipeline network (a 'gathering network') for collecting CO_2 from a cluster of local industries on Teesside; a CO_2 compressor station (for the compression of the CO_2); and a CO_2 export pipeline.

2.1.5 The CO_2 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 CO_2 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);
- CO_2 gathering (from industrial emitters), CO_2 compression and CO_2 transportation and storage; and
- industrial (including hydrogen production) carbon capture and connections to the CO_2 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, 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, 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).

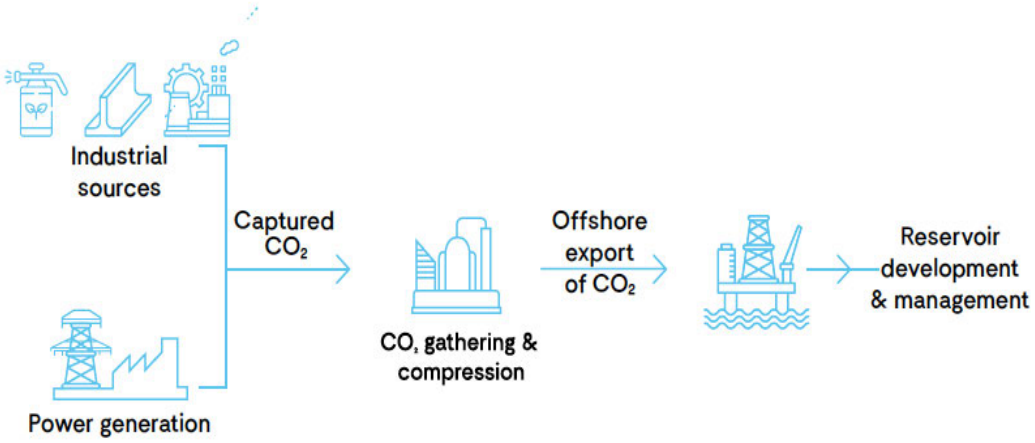
2.2.5 The CO_2 gathering network, CO_2 compression and onshore section of CO_2 export pipeline Partnership comprises bp, Eni, Equinor, National Grid, Shell and Total, with bp leading as operator. NZNS Storage will be responsible for the Proposed Development in so far as it relates to the construction, operation and eventual decommissioning of the equipment required for the high-pressure compression of CO_2 from the electricity generating station and industrial emitters via the CO_2 gathering network and the onshore section of the CO_2 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 CO_2 export pipeline (below Mean Low Water Springs ('MLWS')) to a suitable offshore geological CO_2 storage site under the North Sea, CO_2 injection wells and associated infrastructure. The offshore elements of NZT (with the exception of the gas and CO_2 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 CO_2 emissions at source, for example emissions from an electricity generating station or industrial installation, and then compresses the CO_2 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 CO_2 becomes trapped and locked in place, preventing it from being released into the atmosphere. **Figure 2.1** below shows what is involved in the process.

Figure 2.1 – 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 CO_2 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 CO_2 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 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 9 metres ('m') 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 CO_2 from the electricity generating station in addition to a cluster of local industries on Teesside and transporting it via a CO_2 export 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 export pipeline has the capacity to accommodate up to 10Mt of CO_2 per annum thereby allowing for future expansion.

2.5.2 The Proposed Development comprises the following elements:

- **Work Number ('Work No.') 1** – a Combined Cycle Gas Turbine ('CCGT') 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** – natural gas supply connections and Above Ground Installations ('AGIs') (the **'Gas Connection'**);
- **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'**).

2.5.3 The Low Carbon Electricity Generating Station (Work No. 1) falls within the definition and thresholds for a NSIP under Sections 14(1)(a) and 15 of the PA 2008.

2.5.4 The CO_2 Gathering Network Corridor, including connections under the tidal River Tees (Work No. 6), the HP Compressor Station (Work No. 7) and the CO_2 Export Pipeline (Work No. 8) are the subject of a direction made by the SoS under Sections 35(1) and 35ZA of the PA 2008 (dated 17th January 2020), which confirms that they (the *"Specified Elements"*), together with any matters/development associated with them, are to be treated as development for which development consent is required (in so far as they form a part of the Proposed Development).

2.5.5 The Gas Connection (Work No. 2); Electrical Connection (Work No. 3); Water Supply Connection Corridor (Work No. 4); Water Discharge Connection Corridor (Work No. 5); the Laydown Areas (Work No. 9); and the Access and Highway Works (Work No. 10) represent associated development under Section 115(1)(b) of the PA 2008.

2.5.6 The Low Carbon Electricity Generating Station and the HP Compressor Station will be located on part of the STDC Teesworks area (on part of the former Redcar Steel Works Site). The Low Carbon Electricity Generating Station and the HP Compressor Station are known collectively as the 'Power, Capture and Compression' ('PCC') Site. The CO_2 Export Pipeline will start in this location before heading offshore. The various connections for the Low Carbon Electricity Generating Station and the CO_2 Gathering Network will require corridors of land within both Redcar and Stockton-on-Tees, including crossings beneath the River Tees.

2.5.7 All of the above elements are included in the scope of the DCO Application, with the exception of the CO_2 Export Pipeline, with only the section of pipeline above MLWS being included. The CO_2 Export Pipeline below MLWS and the CO_2 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.

2.5.8 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 (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 Application and draft DCO

2.6.1 The Application Guide (Document Ref. 1.2) lists the documents that make up the DCO Application and how these comply with relevant legislative and policy requirements. The Application Guide is a 'live' document that will be updated throughout the examination of the Application, as required.

2.6.2 Schedule 1 of the draft DCO (Document Ref. 2.1) provides the formal description of the Proposed Development and its elements and identifies the individual Works Numbers ('Works Nos.') for those elements (shown on the Works Plans – Document Ref. 4.4).

2.6.3 The Land Plans (Document Ref. 4.2) show the extent of the land (the 'Order land') over which powers of compulsory acquisition are sought for the Proposed Development, while the Works Plans (Document Ref. 4.4) show the 'Order limits' and identify the location and areas (the Works Nos. areas) within which each of the main elements of the Proposed Development are to be built. The extent of each of the Works Nos. is defined by the coloured and hatched areas on the Works Plans.

2.6.4 As stated above, the draft DCO seeks powers of compulsory acquisition of interests and rights in land (including new rights) within the Order limits. The provisions relating to compulsory acquisition are set out at Articles 22 to 36 of the draft DCO. These and other provisions of the draft DCO are explained in the Explanatory Memorandum (Document Ref. 2.2). Information on the interests and rights that exist in relation to the land within the Order limits is provided by the Book of Reference (Document Ref. 3.1). The justification for the proposed compulsory acquisition of interests and rights in land is set out in the Statement of Reasons (Document Ref. 3.2), with the Applicants' ability to fund this confirmed by the Funding Statement (Document Ref. 3.3).

2.6.5 The draft DCO includes a 'deemed marine licence' (Article 37 and Schedule 10) relating to elements of the Gas Connection (Work No. 2) and Water Discharge Connection Corridor (Work No. 5).

2.6.6 The Proposed Development represents an Environmental Impact Assessment ('EIA') development and therefore the Application includes an Environmental Statement ('ES') (Document Refs. 6.1 - 6.4) that reports the findings of the EIA that has been undertaken.

2.6.7 The ES comprises a Non-Technical Summary (Document Ref. 6.1) and ES Volumes I, II and III (Document Refs. 6.2 - 6.4). It has not been possible for the Applicants to fix all of the design details of the Proposed Development at this stage, especially given that the Proposed Development is a 'First of its Kind' project, and they have therefore sought to incorporate a degree of flexibility within its layout and design. In order to accommodate this flexibility and ensure a robust EIA of the Proposed Development, the Applicants have adopted the 'Rochdale Envelope' approach and, where relevant, assessed a number of maximum design parameters.

2.6.8 The Applicants have consulted extensively on the Proposed Development. This has included two main stages of pre-application consultation – a stage of non-statutory consultation (Stage 1), followed by a stage of statutory consultation (Stage 2) in accordance with Sections 42, 47 and 48 of the PA 2008. The Applicants undertook some additional pre-application consultation following Stage 2 in accordance with Section 42 as well as a non-statutory Community Update relating to further changes made to the Proposed Development and Site. The pre-application consultation undertaken and how responses received to that consultation have been considered is documented within the Consultation Report and its Appendices (Document Ref. 5.1).

2.6.9 Schedule 2 'Requirements' of the draft DCO contains a number of 'requirements' that would control the detailed design of the Proposed Development in addition to its construction and operation to ensure that it remains within the scope of the EIA carried out and does not result in unacceptable impacts. These would require the submission to and approval by the relevant local planning authorities (Redcar and Cleveland Borough Council and Stockton-on-Tees Borough Council) of further details of the Proposed Development. A number of the requirements must be discharged prior to the commencement of the Proposed Development with others needing to be discharged prior to commissioning or commercial use.

2.7 The Purpose and Structure of this Document

2.7.1 The primary purpose of this Planning Statement is to assist the Examining Authority ('ExA') and the SoS in their assessment of the Proposed Development by demonstrating how the Applicants have taken account of relevant planning policy, notably the National Policy Statements ('NPSs') for energy infrastructure, which confirm the need for new electricity generating capacity, and the extent to which the Proposed Development complies with the policies within those NPSs, as well as any other matters that are *"important and relevant"* to the SoS's determination of the DCO Application. Such matters include UK Government energy and climate change policy, the National Planning Policy Framework and the statutory development plan.

2.7.2 The Planning Statement sets out the key benefits for the Proposed Development, including the 'need' for it in terms of decarbonising electricity generation and industry on Teesside, in addition to its likely significant adverse environmental effects. Where relevant the Planning Statement cross references or 'signposts' the relevant application documents that provide more detail on these matters. The need for the Proposed Development is set out in detail within the Need Statement (Document Ref. 5.2), which forms part of the DCO Application.

2.7.3 The Planning Statement is structured as follows:

- **Section 3: Planning History and Local Planning Designations** – provides an overview of the planning history and the local planning designations that apply to the Site.

- **Section 4: The Planning Act 2008 and National Policy Statements** – sets out the legislative and policy framework for the consideration of and determination of DCO applications, notably the NPSs for energy infrastructure and the other matters that are *"important and relevant"* to the SoS's decision-making.
- **Section 5: UK Energy and Climate Change Policy** – provides an overview of UK energy and climate change policy that is of relevance to the Proposed Development within the context of this being one of the matters that is important and relevant to the SoS's decision-making and how the Proposed Development contributes toward important energy and climate change policy objectives.
- **Section 6: The Assessment of the Proposed Development Against Policy** – provides an assessment of the Proposed Development against relevant policy, notably the NPSs for energy infrastructure, the NPPF and the statutory development plan.
- **Section 7: The Benefits and Impacts of the Proposed Development** – identifies the key benefits of the Proposed Development as well as any likely significant adverse effects/impacts and weighs these against each other.
- **Section 8: Conclusions** – sets out the conclusions of the Planning Statement in terms of the overall acceptability of the Proposed Development.

3.0 PLANNING HISTORY AND LOCAL PLANNING DESIGNATIONS

3.1 Introduction

3.1.1 This section provides an overview of the planning history and the planning designations (and related policies) that are of relevance to the Proposed Development Site (the 'Site').

3.2 Planning History

3.2.1 Teesside has a long history of being a location for heavy industry, dating back to the 1870s when steel making first became established on a large scale, to the later development of the chemical industry during the First World War at Billingham. There was further significant expansion of the chemical industry at Billingham in the 1920s and 1930s followed by the development of a major chemicals complex at Wilton from the mid-1940s. Land was reclaimed from the Tees Estuary over the years to accommodate the growth of these and other industries.

3.2.2 The Teesside steel works eventually formed a continuous stretch of development along the south bank of the River Tees from Middlesbrough up to Redcar. At the height of production there were 91 blast furnaces within a 10-mile radius of the area. By the late 1970s, most of the steel works in the area had been taken over by British Steel Corporation, and only one blast furnace remained in operation. Opened in 1979 and located near the mouth of the River Tees, the Redcar blast furnace, which formed part of the wider British Steel Redcar Integrated Steel Works complex, was the second largest in Europe.

3.2.3 Following the privatisation of British Steel Corporation in 1988 to form British Steel Plc (later Corus Group), the Redcar Steel Works were purchased by Thai-based Sahaviriya Steel Industries ('SSI') in 2011 and were reopened in April 2012 after a period of partial mothballing. However, the Steel Works were again mothballed in September 2015 due to poor steel trading conditions and a drop in the price of steel, with the UK arm of SSI going into liquidation shortly after in October 2015.

3.2.4 With the liquidation of SSI, the Redcar Steel Works, including the Redcar Blast Furnace, the Redcar and South Bank Coke Ovens and the Basic Oxygen Steel Plant at Lackenby, closed. The Teesside Beam Mill and some support services still operate at Lackenby.

3.2.5 The former Redcar Steel Works complex (and other land on the south bank of the Tees) is now controlled by STDC following a compulsory purchase inquiry in 2020 and has been rebranded as 'Teesworks'. STDC is now in the process of bringing forward a number of major development proposals on specific sites within the Teesworks area and planning applications have been submitted for a number of these.

3.2.6 The Site and surrounding area has an extensive planning history given the scale of industrial development that has taken place over the years. While much of this is of limited relevance to the Proposed Development, there are a number of major development proposals that warrant consideration, either because they relate to

land within the Site or adjacent to it. Those of particular relevance are detailed in **Table 3.1** below:

Table 3.1 - Relevant Planning History

No.	Application/ proposal	Description	Relationship with Site	Status
1.	York Potash Project - The York Potash Harbour Facilities Order 2016	Installation of wharf/jetty facilities with two ship loaders capable of loading bulk dry material at a rate of 12m tons per annum (dry weight). Associated dredging operations to create berth. Associated storage building with conveyor to wharf/jetty. Including a materials handling facility (if not located at Wilton) served by a pipeline (the subject of a separate application) and conveyor to storage building and jetty.	Located to the south of the PCC Site and crossing parts of the CO_2 gathering, gas and electrical connection and waste water works corridors.	Approved 20.07.16
2.	York Potash Project - Outline planning permission Ref. R/2017/0906/ OOM	Overhead conveyor and associated storage facilities in connection with the York Potash Project.	Located south of the PCC Site and crossing parts of the CO_2 gathering, gas and electrical connection and waste water works corridors.	Approved 30.04.18
3.	Teesworks (Long Acres and South Bank sites) - Planning permission Ref.	Demolition of structures and engineering operations associated with ground preparation and temporary storage of soils and its final use in	Located east of the PCC Site intersecting with parts of the cooling water, electrical connection and	Approved 27.09.19

	R/2019/0427/FFM	the remediation and preparation of land for regeneration and development.	waste water works corridors and construction laydown areas (Long Acres) and to the west of the southern section of the electrical connection corridor (South Bank).	
4.	Redcar Bulk Terminal - Planning application Ref. R/2020/0411/FFM	Construction of the Redcar Energy Centre consisting of a material recovery facility incorporating a bulk storage facility; an energy recovery facility; and an incinerator bottom ash recycling facility along with ancillary infrastructure and landscaping.	Land at Redcar Bulk Terminal to the north-west of the PCC Site.	Approved 27.01.21
5.	Teesworks (South Bank Site) - Outline planning application Ref. R/2020/0357/OOM	Demolition of existing structures on site and the development of up to 418,000 sqm (gross) of general industry (use class B2) and storage or distribution facilities (use class B8) with office accommodation (use class B1), HGV and car parking and associated infrastructure works all matters reserved other than access.	Located to the west of the southern section of the electrical connection corridor.	Approved 03.12.20
6.	Teesworks (Foundry Site)	Development of up to 464,515qm (gross) of	Located to the immediate west	Validated 21.01.21

	- Outline planning application Ref. R/2020/0821/ ESM	general industry (Use Class B2) and storage or distribution facilities (Use Class B8) with office accommodation (Use Class E), HGV and car parking and associated infrastructure works.	and south of the PCC Site and intersecting with parts of the CO_2 gathering, gas and electrical connection and waste water works corridors and construction laydown areas.	(decision pending)
7.	Teesworks (Long Acres Site) - Outline planning application Ref. R/2020/0822/ ESM	Development of up to 185,806 sqm (gross) of general industry (Use Class B2) and storage or distribution facilities (Use Class B8) with office accommodation (Use Class E), HGV and car parking, works to watercourses including realignment and associated infrastructure works.	Located to the east of PCC Site intersecting with the cooling water, electrical connection and waste water works corridors and construction laydown areas.	Validated 21.01.21 (decision pending)
8.	Teesworks (Steel House Site - Outline planning application Ref. R/2020/0823/ ESM	Development up to 15,794sqm (gross) of office accommodation (Use Class E) and car parking and associated infrastructure works.	Located to the east of the northern section of the electrical connection corridor and intersecting with part of the cooling water connection corridor.	Validated 21.01.21 (decision pending)
9.	Teesworks (Dorman Point Site) - Outline planning application ref. R/2020/0819/ ESM	Development of up to 139,353 sqm (gross) of general industry (Use Class B2) and storage or distribution facilities (Use Class B8) with office accommodation	Located immediately to the south-west of the southern section of the electrical connection corridor.	Validated 21.01.21 (decision pending)

		(Use Class E), HGV and car parking, works to watercourse including realignment and associated infrastructure works.		
10.	Teesworks (Lackenby Site) - Outline planning application Ref. R/2020/0820/ ESM	Development of up to 92,903sqm (gross) of general industry (Use Class B2) and storage or distribution facilities (Use Class B8) with office accommodation (Use Class E), HGV and car parking and associated infrastructure works.	Located immediately to the south of the southern section of the electrical connection corridor.	Validated 21.01.21 (decision pending)

3.2.7 The above developments have been taken into account within the assessment of cumulative effects set out at Chapter 24 of the ES (Document Ref. 6.2).

3.3 Local Planning Designations

3.3.1 The Site encompasses land within the administrative boundaries of both Redcar and Cleveland Borough Council ('RCBC') and Stockton-on-Tees Borough Council ('STBC') either side of the River Tees. RCBC and STBC represent the 'host local authorities' for the Proposed Development for the purposes of Section 43 of the PA 2008. The development plan documents ('DPDs') produced by RCBC and STBC represent the statutory development plan for the Proposed Development. These include:

- The Redcar & Cleveland Local Plan and Policies Map (adopted May 2018).
- The Stockton-on-Tees Borough Council Local Plan and Policies Map (adopted January 2019).
- The Tees Valley Joint Minerals and Waste DPDs (adopted September 2011).

3.3.2 The Tees Valley Joint Minerals and Waste DPDs comprise a Minerals and Waste Core Strategy DPD and a Minerals and Waste Policies and Sites DPD. The Joint Minerals and Waste DPDs were prepared together by RCBC and STBC with Darlington, Hartlepool and Middlesbrough Councils.

3.3.3 Parts of the Site lie within the boundary of the STDC area, which is now known as Teesworks. STDC is a Mayoral Development Corporation, covering over 400 hectares of land south of the River Tees within the administrative boundary of RCBC. The purpose of STDC is to further the economic development of the South Tees Area

through physical, social and environmental regeneration, however, RCBC retains planning powers for the area and continues to act as the Local Planning Authority (the 'LPA') in respect of planning policy and development management and the processing and determination of planning applications.

3.3.4 STDC has produced a Master Plan (the 'South Tees Regeneration Master Plan') to provide a flexible framework for the regeneration of the Teesworks/South Tees Area. The Master Plan was prepared throughout 2017 as a supporting visioning and development strategy document to inform the preparation of a Supplementary Planning Document ('SPD') by RCBC for the South Tees Area. Following consultation, the Master Plan was launched alongside the South Tees Area SPD, which was formally adopted by RCBC in May 2018. The South Tees Area SPD is a material planning consideration and represents the formal planning policy interpretation of the Master Plan, which in planning policy terms has no formal status.

3.3.5 An overview of the above DPDs and the South Tees SPD, in so far as they contain planning allocations/designations (and related policies) of relevance to the Proposed Development is provided below. The Proposed Development is assessed against relevant DPD and SPD policy at Section 6.

<u>The Redcar & Cleveland Local Plan</u>

3.3.6 A large part of the Site, including the whole of the PCC Site, is allocated in the Redcar & Cleveland Local Plan as a 'Protected Employment Area', which is subject to Policy ED6 'Promoting Economic Growth'. Policy ED6 seeks to promote industry and port-related uses within the South Tees Area and states that development proposals should have regard to the South Tees Area SPD and that these will be supported where they positively contribute towards growth and regeneration. It goes on to state that where appropriate, proposals will need to demonstrate that there will be no adverse effects on the integrity of the Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, or other European designated nature conservation sites. Development proposals will also be encouraged to improve the quality of the environment.

3.3.7 As stated above, parts of the Site lie within the STDC Teesworks/South Tees Area that is subject to Policy LS4 of the Local Plan. This Policy builds on ED6 and aims to support the delivery of significant economic growth and job opportunities in the area, including encouraging clean and efficient industry to help reduce carbon emissions and the development of Carbon Capture and Storage ('CCS') to decarbonise the local economy. The Policy also seeks to improve the environmental quality of the area and to protect the nearby nature conservation sites. Clearly the Proposed Development is consistent with Policy LS4 as it would help decarbonise the local economy while promoting economic growth and job opportunities.

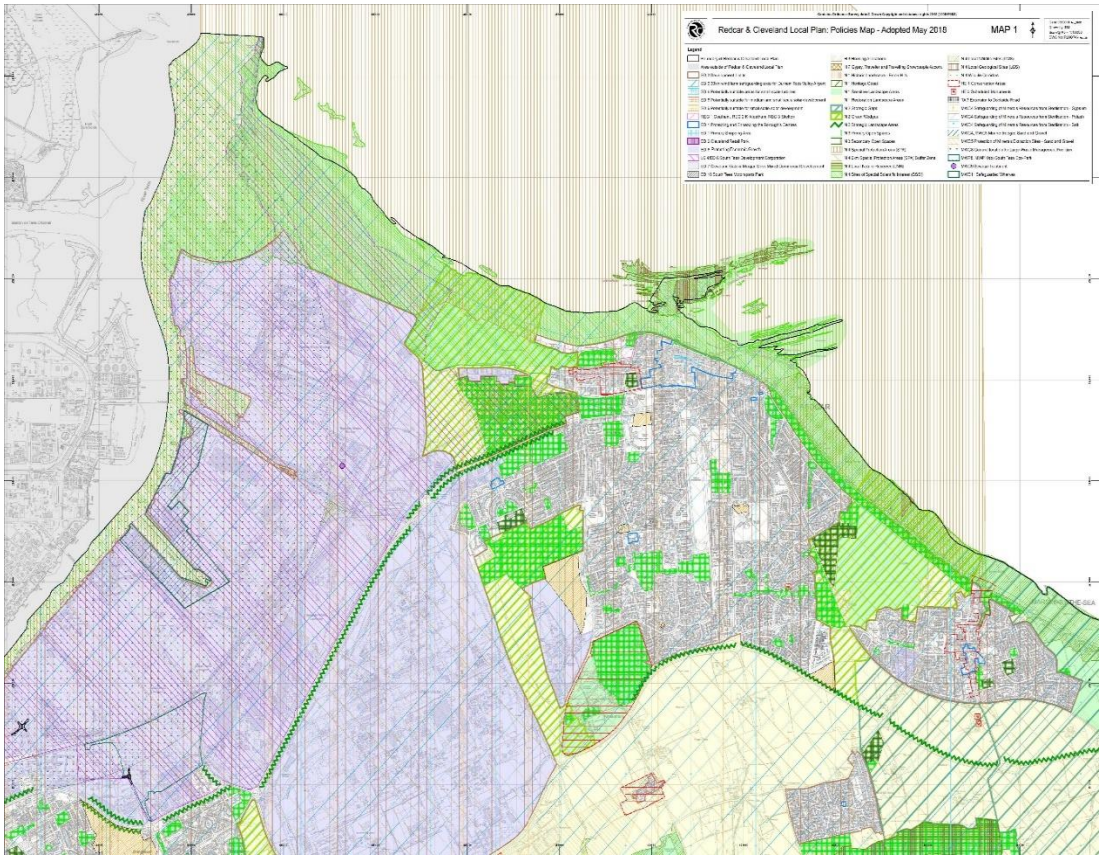
3.3.8 The key planning allocations/designations and related policies that apply to the Site are listed below:

- Development Limits – Policy SD3.

- 30km wind farm safeguarding area for Durham Tees Valley Airport – Policy SD6.
- Protected Employment Area – Policy ED6.
- South Tees Development Corporation Area – Policy LS4.
- Sensitive Landscape Areas – Policy N1.
- Green Wedges & Strategic Landscape Areas – Policy N2.
- Primary Open Areas – Policy N3.
- Teesmouth and Cleveland Coast Special Protection Area 6km Buffer Zone/Ramsar Site & Teesmouth and Cleveland Coast Site of Special Scientific Interest – Policy N4.

3.3.9 The above allocations/designations are shown upon the Policies Map of the Local Plan an extract of which is reproduced below as **Figure 3.1**.

Figure 3.1 – Redcar and Cleveland Policies Map



<u>The South Tees Area SPD</u>

3.3.10 Section 2 of the South Tees SPD sets out the 'Vision' for the Teesworks/South Tees Area, including a number of objectives. Objective 1 is aimed at ensuring strong alignment with the UK Government's Industrial Strategy by shaping regeneration proposals to ensure the Tees Valley can make a contribution to the UK Government's

aspirations for the Northern Powerhouse Initiative. Objective 4 is to (page 10 of the SPD):

"Promote and support development uses aligned with a low carbon, circular economy, while delivering redevelopment within a framework of reduced energy costs and waste minimisation."

3.3.11 Both the above objectives are re-iterated in Development Principle 'STDC1: Regeneration Priorities' (page 15 of the SPD). This states that RCBC, in partnership with STDC, will seek to achieve the comprehensive redevelopment of the South Tees Area in order to *"realise an exemplar world class industrial business park"*. It identifies a number of priorities for the Area, including to prioritise uses connected with advanced manufacturing and advanced new technologies and to promote and support uses and infrastructure connected to a low carbon and circular economy. Figure 2 (page 19) shows a location for manufacturing and energy within the South Tees Area that broadly corresponds with that of the PCC Site.

3.3.12 Development Principle 'STDC6: Energy Innovation' (pages 33 - 34 of the SPD) states that RCBC will, in partnership with STDC and other partners, promote and support the development of new energy generation within the South Tees Area, including renewable energy development and the promotion of other innovative energy projects. Energy generation which contributes to meeting the Area's assessed energy needs will be supported while all energy development should be appropriately site and designed so as to avoid unacceptable effects. Paragraph 3.49 goes on to state:

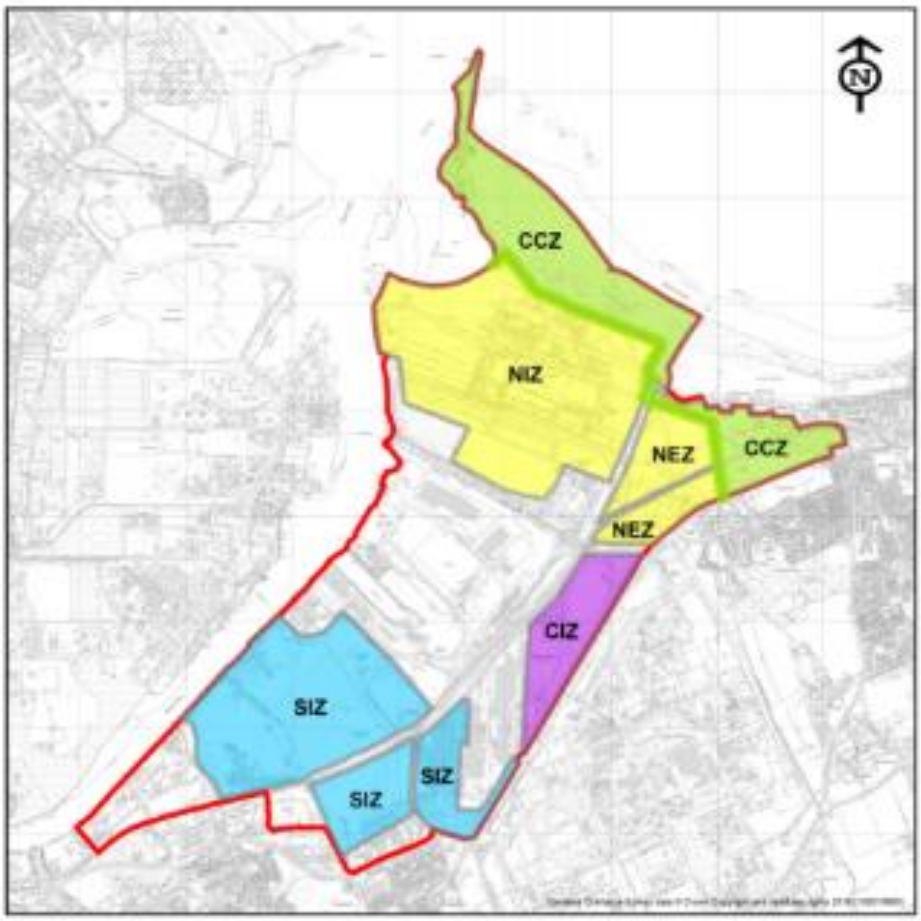
" … provision will include opportunity for the siting of nationally significant energy generators that connect to the grid as well as supporting the Area through private energy supply. Specific requirements relating to these zones are identified within the Site Specific Development Principles."

3.3.13 Following on from the above, Development Principle 'STDC10: Utilities' states that RCBC will support the development of new infrastructure relating to energy generation, including power generation facilities utilising both conventional and renewable resources and CCS.

3.3.14 The Proposed Development is consistent with Development Principles STDC1, 6 and 10 as it involves the provision of a nationally significant electricity generating station combined with CCS technology that would support the decarbonisation of power generation and industry on Teesside and is clearly linked to a low carbon and circular economy.

3.3.15 Section 4 of the SPD sets out site specific development principles for the five main zones of the South Tees Area. These are the North Industrial Zone; North East Industrial Zone; Central Industrial Zone; South Industrial Zone; and Coastal Community Zone (Figure 6: Development Zones - page 48). The zones are shown in **Figure 3.2** below.

Figure 3.2 – Development Zones identified in the South Tees Area SPD



3.3.16 The North Industrial Zone ('NIZ') comprises the former Redcar Steelworks complex and is subject to Development Principle STDC11. This states that RCBC, in partnership with STDC, will encourage development proposals in this zone relating to port related industry, major space users/large scale manufacturing, energy innovation, power generation and storage, bulk materials and mineral processing. It goes onto state that in accordance with Policy N4 'Biodiversity and Geological Conservation' of the Local Plan, development proposals will need to take account of the need for and definition of a buffer zone to protect existing environmental assets within and adjacent to the NIZ.

3.3.17 The PCC Site is located within the NIZ, consistent with Development Principle STDC11, which supports power generation and energy innovation. As confirmed within the Design and Access Statement (Document Ref. 5.4) the siting and layout of the main buildings and structures at the PPC Site is such that these are set back from the boundaries thereby providing a buffer between them and the adjoining environmental assets (e.g. South Gare and Coatham Sands).

3.3.18 Parts of the Site also lie within the North East Industrial Zone ('NEIZ') and the Coastal Community Zone ('CCZ'), which are subject to Development Principles STDC12 and 15 respectively. Within the NEIZ, RBC in partnership with STDC will encourage development proposals relating to advanced manufacturing, research and development, testing and laboratory services and industrial and technology training. In the CCZ proposals for environmental enhancement, small-scale leisure and community uses and improved public access will be supported.

3.3.19 STDC has produced a design guide for the Teesworks/South Tees Area to help inform the design of development proposals. This is a non-statutory document and is not considered further within this Planning Statement. However, the Applicants have had regard to the design guide in developing the layout and design of the Proposed Development, notably the PCC Site, and this is covered within the Design and Access Statement.

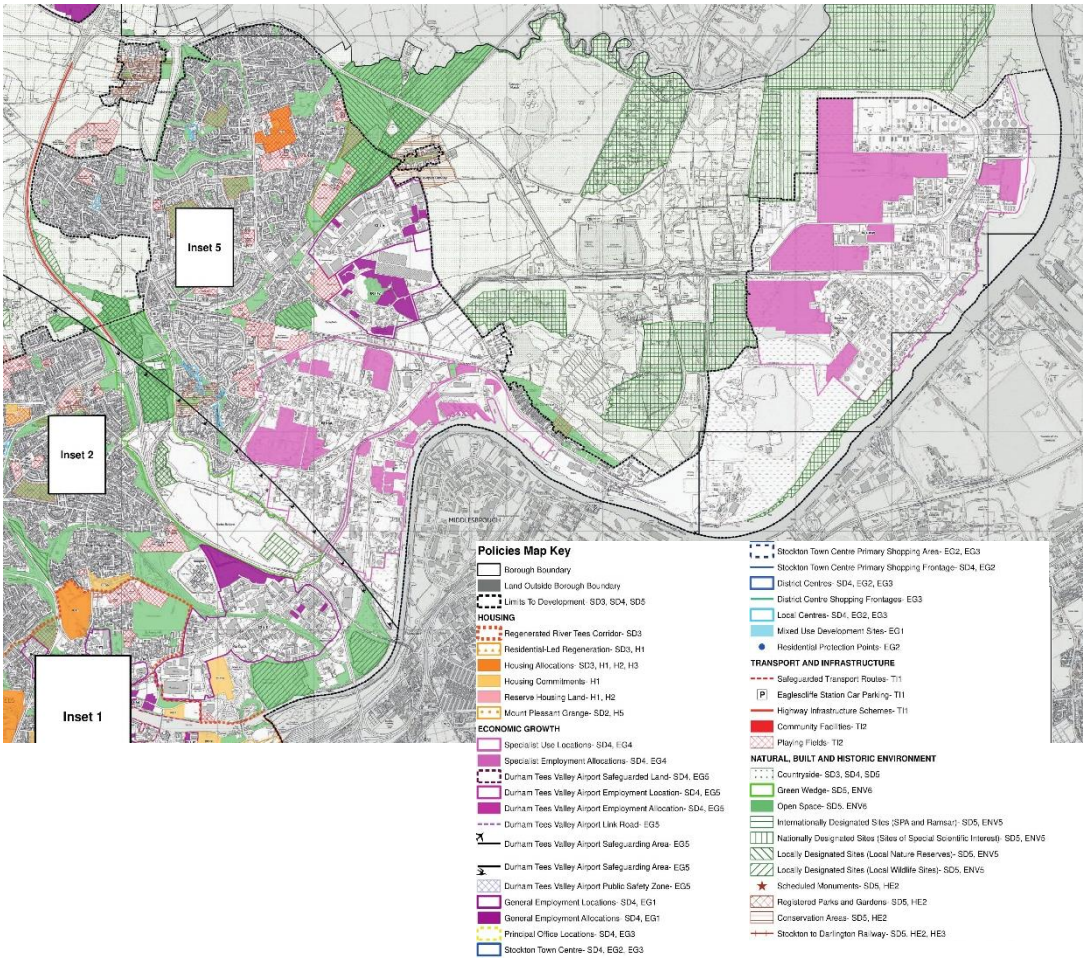
Stockton-on-Tees Borough Council Local Plan

3.3.20 The key planning allocations/designations and related policies that apply to the parts of the Site within the administrative boundary of STBC are listed below. The parts of the Site within STBC comprise sections of the CO_2 gathering network and gas connection in addition to the construction laydown areas required to facilitate their installation:

- Development Limits – Policy SD2.
- Specialist Use Locations – Policy EG4.
- Durham Tees Valley Airport Safeguarding Area – Policy EG5.
- Internationally Designated Sites (SPA and Ramsar) & Nationally Designated Sites (SSSIs) – Policy ENV5.

3.3.21 The above allocations/designations are shown upon the Policies Map of the Local Plan an extract of which is reproduced below as **Figure 3.3** overleaf.

Figure 3.3 – Stockton-on-Tees Local Plan Policies Map



<u>Tees Valley Joint Minerals and Waste DPDs</u>

3.3.22 The key minerals and waste allocations and related policies that apply to parts of the Site are listed below:

- Safeguarding of Minerals Resources from Sterilisation (Salt & Gypsum) – Policy MWC4.
- General Location for Large Waste Management Facilities – Policy MWC8.
- Safeguarding of Port and Rail Facilities (Marine Dredged Sand & Gravel Safeguarded Wharves – Teesport) – Policy MWC11.

3.3.23 It is not considered that there is any conflict between the Proposed Development and the above minerals and waste policies.

3.3.24 The Proposed Development is assessed against the above and other relevant development plan policies at within Section 6.

4.0 THE PLANNING ACT 2008 AND NATIONAL POLICY STATEMENTS

4.1 Introduction

4.1.1 This section of the Planning Statement sets out the legislative and policy framework for the consideration of and determination of applications for Nationally Significant Infrastructure Projects ('NSIPs') such as the Proposed Development, notably the National Policy Statements ('NPSs') for energy infrastructure, while also identifying the other relevant legislative and policy matters that the Secretary of State ('SoS') may have regard to in determining applications for development consent.

4.2 Legislative and Decision-Making Framework

4.2.1 The main legislative and procedural requirements relating to NSIP applications are set out within the following:

- The Planning Act 2008 (the 'PA 2008').
- The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the 'APFP Regulations').
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations').

4.2.2 Before a NSIP can proceed, an application for development consent, granted ('made') in the form of a DCO must be submitted to the relevant SoS pursuant to Section 37 of the PA 2008. The Planning Inspectorate ('PINS') acts on behalf of the relevant SoS – in this case the SoS for BEIS. PINS is responsible for examining the application and making a recommendation to the SoS who then makes the decision as to whether a DCO should be made authorising the construction and operation of the development in question.

4.2.3 Elements of the Proposed Development fall within the definition of a NSIP under Section 14(1)(a) and Sections 15(1) and (2) of the PA 2008, notably the electricity generating station(Work No. 1), which will have a generating capacity of greater than 50 MW output (up to 860 MW). A DCO is therefore required to authorise this element of the Proposed Development in accordance with Section 31 of the PA 2008.

4.2.4 Other elements of the Proposed Development are the subject of a direction made by the SoS under Sections 35(1) and 35ZA of the PA 2008. The Applicants submitted a request for direction under Section 35(1) and 35ZA to the SoS for BEIS on 25 November 2019. This sought a direction from the SoS to confirm that the following elements (the *"Specified Elements"*) of the Proposed Development should be treated as development for which development consent is required under the PA 2008 in addition to the electricity generating station (and its associated development). The Specified Elements were defined as follows:

- the CO_2 gathering network (Work No. 6), including the CO_2 pipeline connections from the electricity generating station and industrial facilities on Teesside to transport the captured CO_2 (including connections under the tidal River Tees);

- the CO_2 gathering/booster station (Work No. 7) (also known as the high-pressure compressor station) to receive captured CO_2 from the electricity generating station and gathering network; and
- the CO_2 transport pipeline (Work No. 8) for the onward transport of the captured CO_2 to a suitable offshore geological storage site (onshore element only).

4.2.5 The SoS issued a direction on the 17 January 2020 which confirmed that the above Specified Elements, together with any matters/development associated with them, are to be treated as development for which development consent is required (in so far as they form a part of the Proposed Development). A copy of the Section 35 Direction is provided at **Appendix 1**.

4.2.6 Section 115(1)(b) of PA 2008 also provides that a DCO can include consent for 'associated development', that is, development that is not part of, but is associated with the NSIP. This may be development that supports the construction or operation of the NSIP, which helps to address the impacts of the NSIP or is of a type of development normally brought forward with the particular type of NSIP. The Gas Connection (Work No. 2), Electrical Connection (Work No. 3); Water Supply Connection Corridor (Work No. 4); Water Discharge Connection Corridor (Work No. 5); Laydown Areas (Work No. 9); and Access and Highway Works (Work No. 10); will support the construction and operation of the NSIP and also the Specified Elements and are therefore considered to be associated development for the purpose of Section 115(1)(b) of the PA 2008.

4.2.7 In view of the above, the Applicants have therefore submitted an application for development consent to the SoS for the whole of the Proposed Development as set out above (excluding the offshore elements).

4.2.8 Under the PA 2008 regime, the policy framework for examining and determining applications for development consent is provided by NPSs. Section 5 of the PA 2008 allows the relevant SoS to designate NPSs setting out national policy in relation to the types of NSIPs listed at Section 14 of the PA 2008. The NPSs are the primary policy used by the relevant SoS to examine and determine applications for NSIPs.

4.2.9 Section 104 of the PA 2008 requires the SoS to determine applications for NSIPs in accordance with the relevant NPSs (where these are in place) and appropriate marine policy documents (if any) having regard to any local impact report produced by the relevant local planning authority; any matters prescribed in relation to development of the description to which the application relates; and any other matters which the SoS thinks are both "important and relevant" to their decision, unless this would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the SoS;
- be unlawful;
- result in the adverse impacts of the development outweighing the benefits; or

- be contrary to any condition prescribing how decisions regarding an NSIP application are to be taken.

4.2.10 Section 105 of the PA relates to decision on applications where no NPS has effect, that is, where there is no NPS in place relating to the specific type of development. In such cases, Section 105 states that in deciding the application the SoS must have regard to any relevant local impact report produced by the relevant local planning authority; any matters prescribed in relation to development of the description to which the application relates; and any other matters which the SoS thinks are both important and relevant to their decision.

4.2.11 A number of NPSs have been designated in relation to energy infrastructure (EN-1 to EN-6) of which those relevant to the Proposed Development are considered later within this section of the Planning Statement. While these NPSs consider carbon capture, they do not specifically contain policies on all of the Specified Elements of the Proposed Development, notably the CO_2 Gathering Network Corridor (Work No. 6). It is therefore relevant to consider whether the Proposed Development should be determined under Section 104 or Section 105 or both.

4.2.12 The Applicants consider that the Proposed Development in its entirety should be determined under Section 104 of the PA 2008. To do so would be consistent with the SoS's recent decision (19 February 2021) on the Wheelabrator Kemsley K3 Generating Station ('WK3') and Wheelabrator Kemsley North Waste-to-Energy Facility ('WKN') Order (PINS Ref. EN010083). In the case of that project, the WKN element, with a generating capacity of 42 MW, had been directed into the PA 2008 regime by the SoS under Section 35 on 27 June 2019 following a request by the applicant.

4.2.13 The SoS in determining the application stated (paragraph 4.6 of the SoS's decision letter) that:

"… the Application should be treated as a whole and determined under section 104 of the Planning Act 2008. This section, and section 105 would seem to be mutually exclusive and it would not be correct to determine different parts of the Application under different provisions. It is also noted that WKN is a type of generating station which would itself generally fall to be considered under EN-3 had it met the 50MW threshold itself and was directed into the Planning Act regime on the basis of its combined significance with the WK3 project. In any event, the Secretary of State does not consider that determining the whole application under section 104 has a material impact on the overall outcome in this case. Section 104(2)(d) of the 2008 Act enables the Secretary of State to give consideration to any important and relevant matters appropriate to this aspect of the application as fully considered by the ExA."

4.2.14 Accordingly, the SoS determined that the entirety of the Wheelabrator application (WK3 and WKN) ought to be determined under Section 104. The SoS's acknowledgement that Sections 104 and 105 "*would seem to be mutually exclusive and it would not be correct to determine different parts of the Application under different provisions"* is directly applicable to other projects, such as the Proposed

Development. The SoS's decision letter also explicitly acknowledges the statutory requirement to consider any matters that the SoS thinks are both "important and relevant" to their decision.

4.2.15 The SoS's decision on the Wheelabrator application applies the wording of Section 104, which is that "*this section applies in relation to **an application** for an order granting development consent if a national policy statement has effect in relation to development of the description **to which the application relates***" (underlining added).

4.2.16 Accordingly, the wording of Section 104 is framed around the *"application"* for development consent, not the parts of the development that are encompassed within that application. Furthermore, there are relevant NPSs in place for elements of the Proposed Development, including the Low Carbon Electricity Generating Station (EN-1 and EN-2) and the associated development (EN-1, EN-4 and EN-5).

4.2.17 It is also relevant that within the Section 35 direction for the Specified Elements of the Proposed Development, the SoS directs that:

"… the Overarching [National] *Policy Statement for Energy (EN-1) has effect in relation to **an application for development consent under this Direction** in a manner appropriately equivalent so far as the consideration and impacts described in EN-1 are relevant to the Proposed Development."* (underlining added)

4.2.18 Furthermore, the Section 35 direction for the Proposed Development was for the *"proposed Net Zero Teesside Project".*

4.2.19 EN-1 contains relevant policy in relation to the electricity generating station and its associated development (the gas, electricity grid and water connections). While it does not contain policy specifically on the need for CO_2 gathering networks, it does, as referred to above, have relevant policy on carbon capture (carbon capture readiness and carbon capture and storage), albeit relating to generating stations, as well as on the environmental impacts of such development.

4.2.20 The Applicants therefore consider that the Proposed Development, including the Specified Elements, should be determined under Section 104 of the PA 2008 in accordance with the appropriate NPSs, and where the NPSs contain policies relevant to the Proposed Development those should be given substantial weight by the SoS.

4.3 National Policy Statements

4.3.1 As confirmed above, a number of NPSs have been designated in relation to energy infrastructure. These were published in July 2011 by the SoS for the Department for Energy and Climate Change (now BEIS). The designated NPSs include an overarching NPS setting out general policies and assessment principles for energy infrastructure and a number of technology specific NPSs. The NPSs considered to be of relevance to the Proposed Development (and which together provide the primary basis for the SoS's decision on the Application) are as follows:

- Overarching NPS for Energy (EN-1).

- NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2).
- NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4).
- NPS for Electricity Networks Infrastructure (EN-5).

4.3.2 The above energy NPSs are considered later within this section.

4.3.3 On 27 June 2019, following advice from The Climate Change Committee ('CCC'), the UK Government announced a new carbon reduction 'Net Zero' target for 2050. This was given effect by an amendment to the Climate Change Act 2008 (the target for the net UK carbon emissions for 2050 changed from 80% to 100% below the 1990 baseline).

4.3.4 In response to the Net Zero target, the Government's Energy White Paper ('EWP'), published in December 2020, confirmed that the SoS for BEIS has decided that it is appropriate to review the suite of NPSs for energy infrastructure, to ensure that they reflect the policies set out in the EWP, and that the Government continues to have a planning policy framework that can deliver the investment required to build the infrastructure needed for the transition to Net Zero by 2050. The EWP confirms that the Government aims to designate updated NPSs by the end of 2021.

4.3.5 While the review of energy NPSs is undertaken, the current suite of NPSs remains relevant Government policy and has effect for the purposes of the PA 2008. They therefore continue to provide a proper basis on which PINS can examine, and the SoS can make decisions on, applications for energy NSIPs. This has been confirmed in recent SoS decisions, including that in respect of WK3/WKN, where the SoS stated:

"*The Energy White Paper "Powering our Net Zero Future", was published on 14 December 2020. The White Paper announced a review of the suite of energy National Policy Statements but confirmed that the current National Policy Statements were not being suspended in the meantime. The relevant energy National Policy Statements therefore remain the basis for the Secretary of State's consideration of the Application*" (paragraph 4.7 of the SoS's decision letter) . Furthermore, the EWP (page 54 states:

"… the need for the energy infrastructure set out in the energy NPS remains, except in the case of coal-fired generation…. Nothing in this white paper should be construed as setting a limit on the number of development consent orders which may be granted for any type of generating infrastructure set out in the energy NPS."

4.3.6 An overview of the NPSs of relevance to the Proposed Development is provided below.

<u>Overarching National Policy Statement for Energy (EN-1)</u>

4.3.7 Part 2 of EN-1 'Government policy on energy and energy infrastructure development' outlines the policy context for the development of nationally significant energy infrastructure. It confirms the following:

- the Government's commitment to meet its legally binding target to cut greenhouse gas emissions by at least 80% by 2050[1] compared to 1990 levels;
- the need to affect a transition to a low carbon economy so as to reduce greenhouse gas emissions; and
- the importance of maintaining secure and reliable energy supplies as older fossil fuel generating plants close as a result of the European Union Emissions Trading System ('EU ETS') and the UK moves toward a low carbon economy.

4.3.8 Paragraph 2.1.2 highlights that energy is vital to economic prosperity and social well-being and, as such, it is important to ensure that the UK has secure and affordable energy. Furthermore, producing the energy the UK requires and getting it to where it is needed necessitates a significant amount of infrastructure, both large and small scale.

4.3.9 Paragraphs 2.2.20 - 2.2.26 of EN-1 deal with the 'security of energy supplies'. Paragraph 2.2.20 states that it is critical that the UK continues to have secure and reliable supplies of electricity as it makes the transition to a low carbon economy. Furthermore, that to manage the risks to achieving security of supply the UK needs:

- Sufficient electricity capacity to meet demand at all times, including a 'safety margin of spare capacity' to accommodate unforeseen fluctuations in supply and demand.
- Reliable associated supply chains (for example, fuel for power stations) to meet demand as it rises.
- A diverse mix of technologies and fuels (and fuel supply routes), so that it does not rely on any one technology or fuel.

4.3.10 Part 3 of EN-1 'The need for new nationally significant energy infrastructure projects' defines and sets out the 'need' for nationally significant energy infrastructure. Paragraph 3.1.1 states that the UK needs all types of energy infrastructure covered by the NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions. Paragraph 3.1.2 goes on to state that it is for industry to propose the type of energy infrastructure and that the Government does not consider it appropriate for planning policy to set targets for or limits on different technologies.

4.3.11 Notably, paragraph 3.1.3 stresses that the SoS should assess applications for development consent for the types of infrastructure covered by the energy NPSs "*…on the basis that the Government has demonstrated that there is a need for those*

[1] On 27 June 2019, the 'Climate Change Act 2008 (2050 Target Amendment) Order 2019' came into force. The Order enshrines within UK law, the Government's commitment to achieve 'net zero' in terms of greenhouse gas emissions by 2050. The order amends the previous target (within the Climate Change Act 2008) which was seeking achievement of a reduction in greenhouse gas emissions of 80% by 2050 compared to 1990 levels.

types of infrastructure…" (with the scale and urgency of that need being described in the relevant part of EN-1). Paragraph 3.1.4 confirms that the SoS should give substantial weight to the contribution that all projects would make toward satisfying this need when considering applications under the PA 2008. As such, EN-1 is clear that the need that exists for new energy infrastructure is not open to debate or interpretation.

4.3.12 Further to paragraph 3.1.3, Section 3.3 of Part 3 of EN-1 sets out a number of key reasons why the Government believes that there is an urgent need for new electricity infrastructure, including:

- Meeting energy security and carbon reduction objectives - the need to ensure there is sufficient electricity generating capacity to meet maximum peak demand, with a safety margin of spare capacity to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events; and a diverse mix of power generation to reduce reliance on any one type of generation or source of fuel or power (EN-1 notes that fossil fuel generation can be brought on line quickly when demand is high and shut down when it is low, thus complementing generation from nuclear and intermittent generation from renewables).
- The need to replace closing electricity generating capacity – EN-1 identifies that at least 22 GW of existing electricity generating capacity will need to be replaced by 2020, as a result of tightening environmental regulation and aging power stations closing; in addition to this about 10 GW of nuclear generating capacity is expected to close over the next 20 years (by 2030). In response to this, EN-1 identifies a minimum need for 59 GW of new generating capacity over the period to 2025 (paragraph 3.3.23).
- The need for more electricity capacity to support the increased supply from renewables - decarbonisation of electricity generation is reliant on a dramatic increase in the amount of renewable energy, however, some renewable sources (such as wind, solar and tidal) are intermittent and cannot be adjusted to meet demand. As a result, the more renewable generating capacity the UK has, the more generation capacity it will require overall to provide back up at times when the availability of renewable sources is low; as such EN-1 (paragraph 3.3.11) recognises that there will still be a role for fossil fuel generation, notably gas-fired generation, to provide a cost-effective means of 'back up' at short notice.
- Future increases in electricity demand - even with major improvements in overall energy efficiency, it is expected that demand for electricity will increase, as significant sectors of energy demand (such as industry, heating and transport) switch from being powered by fossil fuels to using electricity. As a result of this, total electricity consumption could double by 2050 and, depending upon the choice of how electricity is supplied, total capacity may need to more than double to be sufficiently robust to all weather conditions.

4.3.13 Following on from paragraph 3.1.3, paragraphs 3.3.15 - 3.3.24 of EN-1 deal with the urgency of the need for new electricity generating capacity. Paragraph 3.3.15 states that in order to secure energy supplies that enable the UK to meet its climate change obligations to 2050, there is an urgent need for new energy infrastructure to be brought forward as soon as possible.

4.3.14 Box 2.1 of EN-1 (after paragraph 2.2.24) highlights the continuing role of natural gas in safeguarding the security of the UK's electricity supplies as we move to a low carbon economy. It notes that gas will continue to play an important role thanks to its diverse sources of supply and relatively low greenhouse gas emissions compared to other fossil fuels. For example, it produces around half as much carbon dioxide per unit of electricity generated compared to coal and with the planned closure of coal-fired power stations in the UK by 2025, the gas-fired power stations are expected to plug some of the gap in electricity generation, security and flexibility. EN-1 suggests the share of natural gas as part of UK primary energy demand will fall from 41% in 2010 to around 33% by 2020 but is then likely to rise again, potentially to around 36% by 2025, as coal-fired power stations close (paragraph 3.8.1). It goes onto state that new fossil fuel power stations must be constructed and operate in line with increasingly demanding climate change goals.

4.3.15 Paragraphs 3.6.4 - 3.6.7 of EN-1 relate specifically to Carbon Capture and Storage ('CCS'). They explain the role CCS can have in meeting emissions targets while also maintaining security of supply (allowing gas-fired power stations to provide flexible low carbon electricity generation) and that CCS has the potential to reduce carbon emissions by up to 90%. Paragraph 3.6.4 notes that while there is a high level of confidence that the technology involved in CCS will be effective, as the complete chain of CCS has yet to be demonstrated at commercial scale on a power station, there is a lack of knowledge about the future deployment of CCS in the economy. Paragraph 3.6.6 states that in order to support the delivery of CCS policy, the Government will require all new fossil fuel generating stations at or above 300 MW to be Carbon Capture Ready ('CCR').

4.3.16 Paragraph 3.6.8 of EN-1 further underlines the need for new fossil fuel generation with CCS:

"It is important that such fossil fuel generating capacity should become low carbon, through development of CCS, in line with carbon reduction targets. Therefore there is a need for CCR fossil fuel generating stations and the need for the CCS demonstration projects is urgent." [underlining added]

4.3.17 Section 3.8 of EN-1 'The need for nationally significant gas infrastructure' is relevant as it highlights (paragraph 3.8.1) that although the UK's reliance on fossil fuels will fall, the transition will take some time, and gas will continue to play an important part in the Country's fuel mix for many years to come. The continued need for gas-fired generation to form part of the energy mix, albeit with CCS, in order to ensure security and flexibility of electricity supplies, is recognised in more recent government policy, notably the Energy White Paper ('EWP'), December 2020.

4.3.18 Clearly one of the main objectives, and a key benefit of the Proposed Development, is to demonstrate flexible, dispatchable gas-fired generation with CCUS at a commercial scale in the UK. Furthermore, it meets the requirement for new fossil fuel generating station at or above 300 MW to be CCR, being part of a full chain CCUS project, with CO_2 emissions being captured from day one of the commercial operation of the Low Carbon Electricity Generating Station. The Proposed Development would therefore help underpin the security of UK electricity supplies while supporting the transition to a low carbon economy and the achievement of the Government's Net Zero by 2050 target.

4.3.19 Part 4 of EN-1 sets out a number of 'assessment principles' that must be taken into account by applicants and the SoS in preparing and determining applications for nationally significant energy infrastructure. General points include (paragraph 4.1.2) the requirement for the SoS, given the level and urgency of need for the infrastructure covered by the energy NPSs, to start with a presumption in favour of granting consent for applications for energy NSIPs. This presumption applies unless any more specific and relevant policies set out in the relevant NPS clearly indicate that consent should be refused or any of the considerations referred to in Section 104 of the PA 2008 (noted above – paragraph 4.2.9) apply.

4.3.20 Section 6 of this Planning Statement demonstrates that there is no conflict between the Proposed Development and relevant policies in the NPSs and that none of the considerations set out in Section 104 of the PA 2008 apply.

4.3.21 Paragraph 4.1.3 states that in considering any application for development consent, and in particular, when weighing its adverse impacts against its benefits, the SoS should take into account:

- its potential benefits, including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and
- its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.

4.3.22 Paragraph 4.1.4 continues by stating that within this context the SoS should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels.

4.3.23 Other assessment principles include the matters to be covered within any Environmental Statement ('ES'); the Habitats and Species Regulations; the consideration of alternatives; criteria for 'good design'; grid connection; consideration of Combined Heat and Power ('CHP'); consideration of CCS and CCR; climate change adaptation; pollution control and environmental regulatory regimes; safety; hazardous substances; health; common law and statutory nuisance and security, amongst others.

4.3.24 Part 5 of EN-1 deals with the 'Generic Impacts' of energy infrastructure. These include impacts that occur in relation to all or most types of energy infrastructure in

addition to others that may only be relevant to certain technologies. Paragraph 5.1.2 stresses that the list of impacts is not exhaustive and that applicants should identify the impacts of their projects in the ES in terms of both those covered by the NPSs and others that may be relevant. Generic impacts include land use; socio-economics; air quality and emissions; noise and vibration; dust, odour, artificial light, steam and smoke; traffic and transport; civil and military aviation; biodiversity and geological conservation; historic environment; landscape and visual; water quality and resources; flood risk and waste, amongst others. In relation to each of the generic impacts listed within Part 5, guidance is provided on how the applicant should assess these within their application and also the considerations that the SoS should take into account in decision-making.

4.3.25 In addition to the assessment principles and generic impacts covered by EN-1, NPSs EN-2, EN-4 and EN-5 set out the factors (e.g. those influencing site selection) and 'assessment and technology specific' considerations to be taken into account in the preparation and assessment of applications for fossil fuel generating stations, gas pipelines and electricity network infrastructure, including relevant environmental matters. These are considered below.

4.3.26 The Proposed Development's compliance with the assessment principles and generic and technology specific impacts of the relevant NPSs is considered in Section 6 of this Planning Statement.

National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)

4.3.27 EN-2 is one of the suite of technology specific NPSs that sit under EN-1. It deals specifically with fossil fuel infrastructure, including gas-fired generating stations.

4.3.28 EN-2 reiterates the vital role fossil fuel generating stations will play in providing reliable electricity supplies and a secure and diverse mix as the UK makes its transition towards a secure decarbonised electricity system. It also restates from EN-1 the Government policy that all new gas-fired generating stations should be CCR (paragraph 2.3.4).

4.3.29 Part 2 of EN-2 deals with the assessment of and technology-specific information relevant to fossil fuel generating stations. This includes the factors influencing site selection (e.g. land use, transport infrastructure, water resources and grid connection); climate change adaptation; consideration of good design and also the potential impacts of generating stations to be taken into account in the preparation and consideration of the application for development consent. Potential technology-specific impacts include air emissions; landscape and visual; noise and vibration and water quality and resources. It is notable in respect of landscape and visual impacts that EN-2 (paragraph 2.6.5) acknowledges that it is not possible to eliminate such impacts entirely due to the scale of the buildings and structures associated with generating stations and that mitigation will therefore need to be aimed at reducing visual intrusion in the landscape and minimising impacts on visual amenity as far as reasonably practicable.

National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

4.3.30 EN-4 is relevant to the Proposed Development as natural gas will be used as the fuel for the operation of the electricity generating station and the Proposed Development includes a gas supply pipeline. The Gas Connection is 'associated development' as defined by Section 115 of the PA 2008.

4.3.31 Paragraph 1.1.1 (Part 1) states that the efficient import, storage and transmission of natural gas is crucial to meeting the UK energy needs during the transition to a low carbon economy. It notes that we cannot achieve national objectives relating to security of supply without enabling investment in new infrastructure.

4.3.32 Part 2 of EN-4 deals with assessment and technology-specific information, including consideration of climate change adaptation and good design and other factors that are relevant to gas pipelines and supply infrastructure. Key technology specific considerations for gas pipelines include proximity to sensitive land uses (e.g. residential development and schools) when planning routes; pipeline safety; noise and vibration; biodiversity; landscape and visual; water quality and resources; and soils and geology.

National Policy Statement for Electricity Networks Infrastructure (EN-5)

4.3.33 EN-5 is also relevant to the Proposed Development as it includes a new electrical connection between the Low Carbon Electricity Generating Station and the National Electricity Transmission System for the export of electricity. As with the Gas Connection, the Electrical Connection is 'associated development'.

4.3.34 Part 2 of EN-5 deals with assessment and technology-specific information relating to electrical grid connection infrastructure. This includes factors influencing site selection, general assessment principles for electricity networks, climate change adaptation and consideration of good design. Part 2 also identifies a number of potential impacts for consideration, including biodiversity and geological conversation, landscape and visual, noise and vibration and electric and magnetic fields.

4.4 Marine Policy

UK Marine Policy Statement (March 2011)

4.4.1 As noted at paragraph 4.2.9, Section 104 of the PA 2008 requires the SoS to have regard to *"…the appropriate marine policy documents…"* relevant to the NSIP. A number of elements of the Proposed Development involve works within the UK Marine Area (within or under the tidal River Tees and also within the North Sea).

4.4.2 The appropriate marine policy documents are defined at Section 59 of 'The Marine and Coastal Access Act 2009'. These include any marine policy statement which is in effect and to the extent that a decision relates to a marine plan area, any marine plan which is in effect for that area (Section 59(3) and (5).

4.4.3 The UK Marine Policy Statement ('MPS'), adopted in March 2011, provides the policy framework for preparing marine plans and taking decisions affecting the marine environment. It has been prepared and adopted for the purposes of Section 44 of the Marine and Coastal Access Act 2009 and is intended to sit alongside terrestrial consenting regimes, including the PA 2008 regime.

4.4.4 Chapter 2 of the MPS outlines the vision for the UK marine area, the high-level approach to marine planning and general principles for decision making covering economic, social and environmental considerations. It also covers detailed considerations relevant to developments such as marine ecology and biodiversity; air quality; noise; water quality and resources; seascape; historic environment; climate change adaptation and mitigation; and coastal change and flooding.

4.4.5 Chapter 3 sets out the policy objectives for key activities that take place in the marine environment. Section 3.3 deals specifically with 'Energy production and infrastructure development'. Paragraph 3.3.1 notes that a secure, sustainable and affordable supply of energy is of central importance to the economic and social well-being of the UK. Paragraph 3.3.4 sets out issues that decision maker should take into account when examining and determining applications for energy infrastructure. Those of relevance to the Proposed Development include:

- The national level of need for energy infrastructure, as set out in the Overarching National Policy Statement for Energy (EN-1).
- The positive wider environmental, societal and economic benefits of low carbon electricity generating and CCS/CCUS as key technologies for reducing carbon dioxide emissions.
- That the physical resources and features that form oil and gas fields or suitable sites for carbon dioxide storage occur in relatively few locations and need first of all to be explored for and can then only be exploited where they are found.
- The UK's programme to support the development and deployment of CCS/CCUS and in particular the need for suitable locations that provide for the permanent storage of carbon dioxide.

4.4.6 Paragraph 3.3.6 recognises that in some parts of the UK power stations may be sited in coastal locations and will have an important contribution to play in the UK's energy mix. It notes that the construction, operation or decommissioning of power stations may have impacts on the local marine environment through the construction of plants and associated development. There may also be impacts from abstraction and discharge of cooling water during operation. It refers to more detail on the impacts and specific measures and actions to avoid or minimise adverse impacts, including those on marine ecology, being contained within the NPSs, including EN-2 in respect of fossil fuel generating stations.

4.4.7 Paragraphs 3.3.31 to 3.3.35 deal with CCS/CCUS. Paragraph 3.3.31 recognises that fossil fuels will remain an important source of electricity generation for the foreseeable future and that to comply with the UK's legally binding carbon reduction

commitments virtually all fossil fuel generation will eventually need to be fitted with technology that captures carbon dioxide and permanently stores it deep underground. It goes onto state that this will generate considerable volumes of carbon dioxide and that the UK offshore area is thought to be one of the most promising hub locations in Europe for the permanent storage of carbon dioxide.

4.4.8 The significant climate change and economic benefits of CCS/CCUS to the UK are set out at paragraph 3.3.34. Removing carbon dioxide emission from electricity generation will considerably reduce the potential for further acidification of the marine environment, while CCS/CCUS is estimated to be worth up to £3 billion a year to the UK economy by 2030, sustaining up to 100,000 jobs.

North East Marine Plan (January 2020)

4.4.9 Marine plans are intended to set out detailed policy and spatial guidance for a particular area. The UK is divided into a number of marine planning regions with associated plan authorities that are responsible for preparing marine plans. In England the Marine Management Organisation ('MMO') is the plan authority.

4.4.10 The Site lies within the 'North East Inshore Marine Area', which stretches from Flamborough Head in Yorkshire to the Scottish Border. The Plan Area has three main tidal rivers, including the River Tees.

4.4.11 The consultation on the draft North East Marine Plan ran from 14 January to 20 April 2020. This was the final stage of statutory public consultation on the Plan prior to it being submitted to the SoS for Environment, Food and Rural Affairs for adoption. Once published as a Consultation Draft, Marine Plans become a material consideration.

4.4.12 The North East Marine Plan is intended to provide a strategic approach to decision-making, considering future use and providing a clear approach to managing resources, activities and interactions within the area. In referring to Teesside, Tyneside and Wearside (paragraph 14), the Plan identifies that there are future opportunities for CCUS using existing oil and gas infrastructure.

4.4.13 The Plan contains a number of policies (Table 2). There are no specific policies on gas-fired generating stations. Policy NE-INF1 supports appropriate land-based infrastructure which facilitates marine activity and vice versa. Policy NE-CCUS-2 supports CCUS proposals incorporating the re-use of existing oil and gas infrastructure. However, the Policy is clear that this does not mean that proposals that do not incorporate the re-use of infrastructure will be disadvantaged or rejected.

4.4.14 A Deemed Marine Licence is being sought as part of the DCO for the works within the Marine Area. The Proposed Development is consistent with policy contained within the UK Marine Policy Statement and the North East Marine Plan, both of which are supportive of the deployment of CCS/CCUS on Teesside and in the UK Marine Area and the re-use of existing oil and gas infrastructure.

4.5 Other matters that are *"important and relevant"*

4.5.1 As noted above, Section 104 of the PA 2008 sets out the matters that the SoS must have regard to in determining applications for NSIPs, which can include any other matters which the SoS thinks are "important and relevant" to their decision.

4.5.2 In the case of the Proposed Development, the Applicants consider that other matters that are important and relevant to the SoS's decision include recent UK Government energy and climate change policy, notably the Clean Growth Strategy; the UK CCUS Deployment Pathway; the Ten Point Plan; and the EWP, amongst others. These documents set out important Government objectives for decarbonising the power and industrial sectors (in order to achieve Net Zero by 2050) and are considered in detail at Section 5.

4.5.3 Other matters that the SoS may consider important and relevant include the policies contained within the National Planning Policy Framework ('NPPF'), February 2019 also the statutory development plan. The Proposed Development's compliance with relevant NPPF and development plan policy is also considered at Section 6.

4.6 Summary

4.6.1 Under the PA 2008 regime, the primary policy framework for examining and determining applications for development consent is provided by NPSs. Section 104 of the PA 2008 requires the SoS to determine applications for NSIPs in accordance with the relevant NPSs, where these are in place, having regard to a number of specified matters (e.g. appropriate marine policy documents, any local impact report etc.), including any other matters which the SoS thinks are both "important and relevant" to their decision.

4.6.2 Section 105 relates to where there is no NPS in place for the type of development set out in the application. In such cases, Section 105 requires the SoS to weigh the benefits of the application against it adverse impacts, again subject to any specified matters and any other matters which are both important and relevant.

4.6.3 A number of NPSs have been designated in relation to energy infrastructure (EN-1 to EN-6). While these NPSs consider carbon capture they do not specifically consider all of the Specified Elements of the Proposed Development (as set out in the Section 35 Direction dated 17 January 2020), notably the CO_2 gathering network. This raises the question of which section (Sections 104 or 105) of the PA 2008 the Proposed Development should be determined under.

4.6.4 The Applicants consider that the Proposed Development in its entirety should be determined under Section 104 of the PA 2008. That would be consistent with the approach recently taken by the SoS on the Wheelabrator Kemsley K3 ('WK3') Generating Station and Wheelabrator Kemsley North Waste-to-Energy Facility ('WKN') Order. In the case of WK3/WKN, the SoS took the view that the application should be treated as a whole and determined under Section 104 and it would not be correct to determine different parts of the application under different provisions. It

is also consistent with the wording of Section 104, which is frame around "the application" (not the NSIP or parts of the application).

4.6.5 Further to the above, there are relevant NPSs in place for elements of the Proposed Development, including the Low Carbon Electricity Generating station (EN-1 and EN-2) and the associated development (EN-1, EN-4 and EN-5). While EN-1 does not contain policy specifically on the need for CO_2 gathering networks, it does have policy on carbon capture (carbon capture readiness and carbon capture and storage) as well as on the environmental impacts of development, which are relevant. It is also relevant that within the Section 35 direction for the Specified Elements of the Proposed Development, the SoS directs that:

"… the Overarching [National] *Policy Statement for Energy (EN-1) has effect in relation to an application for development consent under this Direction in a manner appropriately equivalent so far as the consideration and impacts described in EN-1 are relevant to the Proposed Development."*

4.6.6 In view of the above factors, the Proposed Development, including the Specified Elements, should be determined under Section 104 of the PA 2008 in accordance with the appropriate NPSs, and where the NPSs contain policies relevant to the Proposed Development those should be given substantial weight.

4.6.7 The energy NPSs, in particular EN-1, confirm the need that exists for developing new nationally significant energy infrastructure, including new gas-fired generating stations with CCS/CCUS in order to underpin the security of UK electricity supplies (providing flexible back-up generation to renewables) and support the transition to a low carbon economy. EN-1 makes clear that the SoS should assess applications on the basis that this need and its scale and urgency has been proven and that substantial weight should be given to the contribution that all development make toward satisfying this need. Although the EWP includes a commitment to review the current suite of energy NPSs, while that review is undertaken, they remain relevant Government policy for the purposes of making decisions on energy NSIPs. The EWP also underlines the need for the energy infrastructure set out in the energy NPSs.

4.6.8 One of the main objectives, and a key benefit of the Proposed Development, is to demonstrate flexible, dispatchable gas-fired generation with CCS/CCUS at a commercial scale in the UK. It meets the requirement for new fossil fuel generating stations at or above 300 MW to be CCR, being part of a full chain CCUS project, with CO_2 emissions being captured from day one of the commercial operation of the electricity generating station. The Proposed Development would therefore help underpin the security of UK electricity supplies while supporting the transition to a low carbon economy and the achievement of the Government's Net Zero by 2050 target. As such, it accords with a key policy objective of EN-1 (and the EWP), to deliver new low carbon electricity generating capacity.

4.6.9 The Proposed Development's compliance with NPS policy and the assessment principles and generic and technology specific impacts of the relevant NPSs is dealt with at Section 6 of this Planning Statement.

4.6.10 In terms of marine policy, the Proposed Development is consistent with policy contained within the UK Marine Policy Statement and the North East Marine Plan, both of which are supportive of the deployment of CCS/CCUS in the UK Marine Area.

4.6.11 Any other matters that are *"important and relevant"* to the determination of the DCO Application include recent UK Government energy and climate change policy, the NPPF and the statutory development plan. UK Government energy and climate change policy, and how the Proposed Development would contribute toward its delivery, is considered in detail at Section 5 of this Planning Statement. The Proposed Development's compliance with relevant NPPF and development plan policy is also considered at Section 6.

5.0 UK ENERGY AND CLIMATE CHANGE POLICY

5.1 Introduction

5.1.1 This section provides an overview of recent and relevant UK energy and climate change policy, which establishes clear objectives for decarbonising the power and industrial sectors and achieving the Government's legally binding commitment to achieve Net Zero in terms of greenhouse gas emissions by 2050. This includes a number of national infrastructure plans and assessments; the Clean Growth Strategy; the UK CCUS Deployment Pathway; the Ten Point Plan; the Energy White Paper; and the Industrial Decarbonisation Strategy, amongst others. The Applicant considers that these matters, within the context of Section 104 of the PA 2008, are "relevant and important" to the SoS's decision making on the Proposed Development.

5.2 National Infrastructure Plans and Assessments

National Infrastructure Plan (HM Treasury, 2014)

5.2.1 The National Infrastructure Plan was published by the Conservative/Liberal Democrat Coalition Government in December 2014 (the 'NIP 14'). It builds upon the first NIP that was published in 2010. The NIP 14 sets out an ambitious vision for the UK's infrastructure, reinforcing the government commitment to investing in infrastructure and improving its quality and performance.

5.2.2 Chapter 1 of the NIP 14 sets out the strategy for infrastructure. Paragraph 1.1 emphasises the strong case for infrastructure investment and that this has a significant positive effect on output, productivity, and growth rates, being a key driver for jobs throughout the economy. The Executive Summary highlights the economic benefits of infrastructure investment, including:

- for every £1 billion spent on infrastructure investment, 5,000 construction jobs could be supported as well as many more indirectly in design, engineering and planning; and
- for every £1 spent on infrastructure construction there is an increase of £2.84 in overall economic activity.

5.2.3 Chapters 3 to 13 of the NIP 14 deal with different infrastructure sectors. Chapter 8 covers 'Energy'. It reports on the progress made since 2010, with 20 GW of new electricity capacity created (enough for 23 million homes), much of it being low carbon or renewable. However, a key objective of the NIP 14 in terms of energy investment (paragraph 8.1) is to *"…reduce carbon emissions in order to mitigate climate change and meet legally binding targets."*

5.2.4 Paragraph 8.3 states that large-scale investment in gas and low-carbon electricity generation is vital in order to replace ageing energy infrastructure, maintain secure energy supplies and meet legally binding environmental targets. Around £100 billion

of investment is estimated to be required in electricity generation and networks by 2020. Paragraph 8.5 continues:

"As legacy coal, gas and nuclear power stations come offline, they will increasingly be replaced with a combination of renewable energy, new nuclear power and fossil fuel power stations fitted with Carbon Capture and Storage (CCS) technology. New gas plant is also needed as a vital backup for less flexible renewable generation and to ensure that the system can meet peak electricity demand. Demand for gas to supply heat to homes and businesses will also remain significant for some time to come." [underlining added]

5.2.5 The NIP 14 therefore recognises the continuing need for new low carbon gas-fired power stations to provide back-up to less flexible renewable generation. The provision of such infrastructure is critical to ensuring that the National Grid can meet peak electricity demand as the amount of renewable generation increases.

5.2.6 At paragraph 8.28 the NIP 14 sets out the Government's Top 40 'Priority Investments' to support its objectives for the energy sector. Alongside increased generation from renewables and new nuclear these include more electricity generation from gas and the deployment of carbon capture and storage ('CCS').

5.2.7 The Proposed Development would contribute to the delivery of the NIP 14 and in particular the objectives for the energy sector, through the deployment of the Low Carbon Electricity Generating Station with CCP, forming part of a full chain CCUS project. The Proposed Development will therefore assist with moves to decarbonise the power sector, while ensuring the security of electricity supplies.

National Infrastructure Delivery Plan 2016-2021 (The Infrastructure and Ports Authority, 2016)

5.2.8 The National Infrastructure Delivery Plan (2016 - 2021) (the 'NIDP') was published in March 2016 by The Infrastructure and Projects Authority reporting to HM Treasury and Cabinet Office and builds upon the NIP 14. The NIDP brings together the Government's plans for economic infrastructure over a five-year period (2016 - 2021) with those to support the delivery of housing and social infrastructure. The Executive Summary (page 7) states that:

"This is reflected by the government's commitment to invest over £100 billion by 2020-21, alongside significant ongoing private sector investment in our infrastructure."

5.2.9 The NIDP (Chapter 1, paragraphs 1.3 - 1.4) highlights the importance of establishing the right framework to deliver infrastructure. This means having organisations with a clear purpose and clear responsibilities that can work together to plan the development of UK infrastructure. It goes onto state:

"1.3 … To support this, the government has set up 2 new bodies – the Infrastructure and Projects Authority and an independent National Infrastructure Commission – to ensure the right infrastructure projects are identified and delivered successfully.

1.4 These organisations are complementary and together will ensure a comprehensive approach to infrastructure planning across both the relatively short term (to 2020-21) and the very long terms (to 2050), through the National Infrastructure Assessment."

5.2.10 Chapter 5 of the NIDP deals with 'Energy' and sets out the key projects and programmes in this sector over the period 2016 - 2021 (paragraph 6.28). It identifies the continuing importance of gas in heating our homes (and that UK gas supplies are amongst some of the cheapest and most secure in Europe) and the need for new high efficiency Combined Cycle Gas Turbine ('CCGT') technology to come forward.

5.2.11 Chapter 13 deals with 'Regional Infrastructure' and sets out (paragraphs 13.19 - 13.20) the Government's 'Northern Powerhouse' plan to boost the economy across the North of England, with £19 billion of investment in infrastructure planned by 2020-21. With regard to Teesside, it is relevant to note that Table 13.C 'Devolved Powers within the Northern Powerhouse', confirms that the Government is committed to *"… working with Tees Valley to explore how it can continue to develop its industrial carbon capture and storage proposals towards deployment of this infrastructure for its industrial sites in the 2020s…".*

5.2.12 The Proposed Development would facilitate industrial carbon capture on Teesside through the development of the CO_2 Gathering Network providing the opportunity for local industries to decarbonise their operations.

National Infrastructure Assessment (The National Infrastructure Commission, 2018)

5.2.13 The National Infrastructure Commission (the 'NIC') was established in 2015 to provide independent, impartial advice on the UK's long-term infrastructure needs.

5.2.14 In the National Infrastructure Assessment (the 'NIA 18'), published in July 2018, the NIC has looked across different infrastructure sectors and came to independent conclusions based on the best available evidence. The foreword to the NIA 18 (page 3) confirms that it sets out a clear, long term strategy for the UK's economic infrastructure from 2020 to 2050, providing long term clarity for industry and the supply chain.

5.2.15 The NIA 18 sets out a number of recommendations (page 5) and the Government has committed to respond to the NIC's recommendations and to adopt agreed recommendations as government policy. One of the key themes is 'Low cost, low carbon' with the NIA 18 stating (page 9) that the UK can and should have low cost and low carbon electricity, heat and waste.

5.2.16 The 'Low cost, low carbon' theme is dealt with in detail at Chapter 2 of the NIA 18. There is only limited consideration of CCS in the NIA 18 and that largely relates to an acknowledgement (page 38) that such infrastructure will not be built by the private sector without some form of government support. Figure 2.3 (page 43) summarises the NIC's analysis of CCS. This recognises that, as well as reducing power sector emissions, CCS has several other potential uses, including the reduction of emissions from industrial processes, combining it with biomass combustion to create negative

emissions and the manufacture of low carbon hydrogen. With regard to this, it is important to note that a key element of the Proposed Development is to facilitate the decarbonisation of industry on Teesside through the development of the CO_2 Gathering Network, which will also support the future production of low carbon hydrogen.

Net Zero - Opportunities for the power sector (National Infrastructure Commission, 2020)

5.2.17 In March 2020, the NIC published a report entitled 'Net Zero - Opportunities for the power sector') (the 'Net Zero Report'), responding to the Government's decision in June 2019 to legislate for a Net Zero greenhouse gas emissions target for the whole economy by 2050, and taking account of the recommendations set out in the NIA 18.

5.2.18 The Net Zero Report details work that looks at the total electricity costs of delivering a Net Zero compatible electricity system by 2050. Two different electricity demand scenarios are examined. One involving the electrification of heating and the other hydrogen for heating. Additionally, the Net Zero Report considers the impact that either hydrogen or bioenergy could have if deployed in the power sector (Executive Summary - page 7).

5.2.19 The NIC's latest analysis demonstrates that, if deployed, hydrogen, either generated from electrolysers using curtailed generation or gas reforming (hydrogen generated from natural gas) with CCS, has the potential to materially reduce the costs of highly renewable electricity mixes in the UK. Furthermore, if bioenergy with CCS ('BECCS') is deployed in the power sector, it is likely to displace other baseload technologies such as nuclear. The NIC go on to refer to the findings of the CCC that BECCS is likely to be needed to generate negative emissions (Executive Summary - page 9).

5.2.20 The NIC's analysis of 2050 generation and capacity mixes has not significantly changed in light of the Government's Net Zero target. It states that the same technologies, in broadly similar quantities, are still likely to be needed in the long term. This includes at least 18 Gigawatts of gas with CCS needed by 2050 across all scenarios. The Net Zero Report does though note that by 2050, gas will primarily play a peaking role in the electricity system and that residual emissions from not capturing 100% of the CO_2 is likely to limit its role in providing bulk baseload generation in a Net Zero power system, unless high capture rates are achieved (pages 18 - 19 including Figures 5 and 6).

5.2.21 Further to the above, the Net Zero Report finds that deploying hydrogen turbines at scale to generate electricity, to complement renewable technologies, significantly reduces overall system costs. Across three different levels of renewable penetration, savings of between 10 and 30% are seen (page 23 - Figure 10). This assumes the use of turbines using hydrogen from gas reforming paired with CCS, which is likely to be the cheapest source of hydrogen (compared to electrolysis) and consistent with economy wide decarbonisation (page 37). The Net Zero Report states that this could displace many other non-renewable forms of generation, including nuclear and gas with CCS (page 23).

5.2.22 'Net Zero – Opportunities for the power sector' therefore highlights the potential future role of CCS in decarbonising the power sector by capturing CO_2 from new gas-fired generation while also decarbonising industry supporting the generation of hydrogen and decarbonising industry generally. The Proposed Development will put this into practice on Teesside.

5.3 The Clean Growth Strategy (HM Government, 2017)

5.3.1 The 'Clean Growth Strategy - Leading the way to a low carbon future', was published by the Department for BEIS in October 2017 (and amended in April 2018). The Clean Growth Strategy (the 'CGS') sets out the aims of the Government to deliver increased economic growth while reducing carbon emissions. It estimates that the low carbon economy could grow 11% per year between 2015 and 2030, four times faster than the projected growth of the economy as a whole.

5.3.2 The Executive Summary (page 9) confirms that for the UK to achieve its fourth and fifth carbon budgets (2023 - 2027 and 2028 - 2032) it will be necessary to drive a significant acceleration in the pace of decarbonisation. The Executive Summary sets out a number of key policies and proposals (pages 12 - 16) relating to 'Improving Business and Industry Efficiency'. These include to:

"4. Publish joint industrial decarbonisation and energy efficiency action plans with seven of the most energy intensive industrial sectors;

5. Demonstrate international leadership in carbon capture usage and storage (CCUS), by collaborating with our global partners and investing up to £100 million in leading edge CCUS and industrial innovation to drive down costs.

6. Work in partnership with industry, through a new CCUS Council, to put us on a path to meet our ambition of having the option of deploying CCUS at scale in the UK, and to maximise its industrial opportunity.

7. Develop our strategic approach to greenhouse gas removal technologies, building on the Government's programme of research and development and addressing the barriers to their long-term deployment."

5.3.3 Chapter 3 (page 47) of the CGS sets out the Government's approach and states:

"…we must create the best possible environment for the private sector to innovate and invest. Our approach will mirror that of our Industrial Strategy: building on the UK's strengths …; improving productivity across the UK; and ensuring we are the best place for innovators and new business to start up and grow. We are clear about the need to design competitive markets and smart regulation to support entrepreneurs and investors who will develop the new technologies at the scale we need."

… we are laying the groundwork for major decisions in the areas where we face greatest uncertainty and challenge: in how we work with industry to make carbon capture, usage and storage (CCUS) a viable future option."

5.3.4 Page 49 of the CGS goes on to state that:

"We want to use the power of Government to support innovation in a low carbon economy using all the tools available to us, including market design, taxation and regulation, as well as investment in our education systems, our science base and innovative companies. Our aim is to become one of the best places in the world for low carbon innovation."

5.3.5 Chapter 3 of the CGS 'Our Clean Growth Strategy' sets out the various projects that have been announced as part of the 'BEIS Energy Innovation Programme' (page 50). This includes up to £20 million of investment in a carbon capture and utilisation demonstration programme.

5.3.6 The Proposed Development accords with the Government's approach set out above, in particular, removing uncertainty and working with industry to make CCUS a viable future option.

5.3.7 Chapter 4 of the CGS deals with different sectors of the UK economy, including at pages 61 - 71, a section on 'Improving Business and Industry Efficiency and Supporting Clean Growth'. Page 62 states (as at the time the CGS was prepared) that business and industry account for approximately 25% of the UK's emissions and 50% of its electricity use.

5.3.8 This section of Chapter 4 sets out various policies and proposals to increase energy efficiency in business and industry. However, it is acknowledged (page 64) that energy intensive industries will require steps beyond energy efficiency:

"Out to 2030, this will require industry to make progress in switching from fossil fuel use to low carbon fuels such as sustainable biomass, in line with broader Government priorities in delivering on clean air, and clean electricity. Beyond 2030, this switching will need to substantially increase in scale and be coupled with the deployment of new technologies, for example, carbon capture, usage and storage (CCUS). Over the course of this Parliament, we will therefore also develop a framework to support the decarbonisation of heavy industry." [underlining added]

5.3.9 Figure 17 'Carbon reduction opportunities across industry (2050)' (page 65) confirms that the deep decarbonisation of industry will need to go beyond energy efficiency and highlights the significant contribution that CCUS could make toward decarbonisation.

5.3.10 Page 69 deals with CCUS in detail. Its states:

"There is a broad international consensus that carbon capture, usage and storage (CCUS) has a vital future role in reducing emissions. This could be across a wide range of activities such as producing lower-emission power, decarbonising industry where fossil fuels are used and/or industrial processes as well as providing a decarbonised production method for hydrogen which can be used in heating and transport. This makes CCUS a potentially large global economic opportunity for the UK. The International Energy Agency estimates there will be a global CCUS market with over £100 billion – with even a modest share of this global market, UK GVA could increase between £5 billion and £9 billion per year by 2030."

5.3.11 The Proposed Development will contribute to the achievement of carbon budgets. It would serve as a demonstration that CCUS can be delivered at a commercial scale in the UK in connection with both power generation and industry. Furthermore, it will have the potential to encourage further similar development in the future, thereby contributing to the wider decarbonisation of power generation and industry within the UK. The CGS (page 70) confirms that the Government will set up a new Ministerial-led CCUS Council with industry to review progress and priorities. Furthermore, that Government will continue to work with ongoing initiatives, including in locations such as Teesside, to test the potential for development of CCUS industrial decarbonisation clusters. It goes on to state (page 71) that:

"The Government will spend up to £100 million from the BEIS Energy Innovation Programme to support Industry and CCUS innovation and deployment in the UK including £20 million of funding available for a carbon capture and utilisation demonstration programme to invest in new innovative technologies that capture and utilise carbon dioxide."

5.3.12 Pages 93 - 101 of Chapter 4 cover 'Delivering Clean, Smart, Flexible Power'. The overriding objective is to deliver a reduction in emissions from the power sector. Page 96 states that in order to achieve this it will be necessary to continue to bring down the costs of low carbon generation from renewables and nuclear and ensure that the UK can deploy CCUS at scale during the 2030s. Page 101 reiterates that Government's commitment to supporting CCUS innovation and deployment through the BEIS Energy Innovation Programme.

5.3.13 The Proposed Development will clearly contribute to the delivery of the CGS in terms of the Government's objective to decarbonise both the power and industrial sectors. Furthermore, it is particularly well located to support the creation of an industrial decarbonisation cluster given the concentration and proximity of major energy intensive industry on Teesside.

5.4 Clean Growth - The UK Carbon Capture Usage and Storage deployment pathway - An Action Plan (HM Government, 2018)

5.4.1 'Clean Growth - The UK Carbon Capture Usage and Storage deployment pathway - An Action Plan' (the 'Action Plan') was published by the Government in November 2018. The Executive Summary (pages 5 and 6) confirms that the Government's vision is for the UK to become a global leader in CCUS. The Action Plan is aimed at enabling the development of the first CCUS facility in the UK, with commissioning in the mid-2020s, which would support the ambition of being able to deploy CCUS at scale during the 2030s, subject to the costs coming down sufficiently. It states (page 6):

"Through our Clean Growth Strategy we re-affirmed our commitment to the domestic deployment of CCUS subject to cost reductions. This Plan sets out our next steps to progress this commitment."

5.4.2 The Action Plan states that this can only be achieved through close Government and industry partnership (page 14) and that CCUS is thought to be central to a least cost energy system decarbonisation pathway to 2050. It goes on to state (page 14) that:

"The Committee on Climate Change (CCC) stresses the importance of CCUS to "achieving an 80% emissions reduction at lowest cost, as well as its crucial role in enabling deeper emissions reduction beyond that". Modelling by the Energy Systems Catapult (ESC) for the Energy Technologies Institute (ETI) supports the conclusion by the CCC that energy system decarbonisation could be up to fifty per cent cheaper by 2050 if CCUS is deployed at scale, and conclude that delaying deployment beyond the 2020s will increase the risks of decarbonising the UK's energy system. Both the CCC and ETI analysis concludes that initial deployment is required during the 2020s in order to have the option of deploying at scale during the 2030s, and in particular to keep open the option of UK CCUS deployment towards the levels both state are required in 2050. This timeline was endorsed by the CCUS Cost Challenge Taskforce, and the conclusion was also reached by the Parliamentary Advisory Group on CCS. A key message from all these independent bodies is that deployment of CCUS during the 2020s is essential to unlock the greatest opportunities for cost reduction."

5.4.3 Teesside, with its concentration of heavy industry, including chemicals and access to North Sea storage, is identified as one of the key potential locations for CCUS (page 16), building on the work undertaken to date by the Teesside Collective. At page 27 'Delivering our 2030s ambition' reference is made to CCUS being central to the long-term competitiveness of areas such as Teesside.

5.4.4 At page 32 'Industrial decarbonisation with CCUS' the Action Plan highlights the importance of CCUS in decarbonising energy intensive industries (EIIs), including iron and steel, cement, chemicals, and oil refining. It goes on to state:

"Some of these industries produce volumes of emissions from chemical processes, in addition to combustion of fossil fuels, for example, up to 70% of emissions from cement production are from the process of producing cement, rather than from energy use. These emissions cannot be abated by fuel switching or electrification.

Overall, CCUS could provide 37% of the total abatement potential in EIIs by 2050. A recent study by McKinsey on decarbonising EIIs showed that where carbon dioxide storage sites are accessible, CCUS is the lowest-cost decarbonisation option at current commodity prices. CCUS also enables the large-scale use of hydrogen as an industrial fuel, which the recent CCC and Element Energy reports have indicated could be one cost-effective pathway to industrial decarbonisation."

5.4.5 The Action Plan (pages 35 to 37) also highlights the role of CCUS in decarbonising electricity generation, alongside an expansion of other forms of low and zero-carbon power generation to achieve "deep decarbonisation" of the UK power sector.

5.4.6 The Proposed Development is consistent with the vision and ambition of the Action Plan. Furthermore, Teesside, with its concentrations of heavy industries, particularly within the chemicals sector, and is proximity to North Sea storage, is identified as a potential key location for the deployment of CCUS at scale.

5.5 'Net Zero' by 2050 (HM Government, 2019)

5.5.1 On 27 June 2019, the 'Climate Change Act 2008 (2050 Target Amendment) Order 2019' came into force. The Order enshrines within UK law, the commitment to achieve Net Zero in terms of greenhouse gas emissions by 2050. The Order amended the previous target (within the Climate Change Act 2008) which was seeking achievement of a reduction in greenhouse gas emissions of 80% by 2050 compared to 1990 levels.

5.5.2 The commitment to achieve Net Zero by 2050 was based on the recommendations of the CCC set out in its report 'Net Zero - The UK's Contribution to Stopping Global Warming' (May, 2019) (the 'CCC Report'). The CCC Report is clear that if this target is to be achieved greenhouse gas emissions will need to be offset by schemes that are capable of taking away large amounts of emissions from the atmosphere. The CCC Report identifies CCUS as having a key role to play in mitigating greenhouse gas emissions.

5.5.3 The Executive Summary to the CCC Report (page 12) states that the Net Zero target cannot be met simply by adding mass removal of CO_2 on to existing plans for the previous target of an 80% reduction by 2050 compared to 1990 levels. It highlights that CCUS is crucial to the delivery of zero greenhouse gas emissions and that it is of strategic importance to the economy. However, it raises concern that CCUS has barely started in the UK and that of the 43 large-scale CCUS projects operating in the World, none are in this Country.

5.5.4 The CCC Report is very clear that the remaining greenhouse gas emissions in the UK must be offset by removing CO_2 and permanently sequestering it through technologies such as CCUS. The important role of CCUS is also stressed in terms of capturing the CO_2 from non-renewable electricity production, industry and the production of hydrogen (given the ambition to move to a hydrogen economy that is seen as critical to achieving net zero) (page 23). The scenarios considered involve the aggregate annual capture and storage of 75 - 175Mt CO_2 in 2050, which would require major CO_2 transport and storage infrastructure servicing at least five clusters. The CCC Report concludes that CCUS is a necessity for the UK not an option.

5.5.5 The Proposed Development will facilitate and service a decarbonised cluster on Teesside, with the ability to capture 4Mt CO_2 per annum initially but with the scope to increase this to 10Mt CO_2 per annum in the future.

5.6 Reducing UK emissions: 2020 Progress Report to Parliament (The Climate Change Committee ('CCC'), June 2020)

5.6.1 The CCC is an independent, statutory body that was established under the Climate Change Act 2008. The purpose of the CCC is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

5.6.2 The CCC issued its latest progress report 'Reducing UK emissions: 2020 Progress Report to Parliament', in June 2020 (the 'Progress Report'). The Progress Report (required under the Climate Change Act 2008) provides an annual review of UK progress in reducing greenhouse gas ('GHG') emissions. This followed a May 2020 update published on the CCC's website, which raised concerns over the UK's ability to meet its Fourth (2023 - 27) and Fifth (2028 - 32) Carbon Budgets (despite these being set against the previous target of an 80% reduction in emissions by 2050) and stressed the need, in view of the more challenging net zero target, for progress on emissions reductions to be accelerated.

5.6.3 Much of the Progress Report focuses on providing advice to government on delivering a recovery from Covid-19 that both accelerates the transition to Net Zero and strengthens the UK's resilience to the impacts of climate change, while driving new economic activity. The Executive Summary (page 13) raises concern that over the past 12 months government has not made the policy progress that the CCC called for in 2019 and it highlights the importance of the Energy White Paper ('EWP'), including measures to expand supplies of low-carbon power, encourage a resilient and flexible energy system and provide enduring market mechanisms to drive investment in low-carbon industrial technologies and industrial sectors.

5.6.4 At page 18 the Executive Summary calls for the National Infrastructure Strategy to set a vision for infrastructure development over the next 30 years consistent with net zero and that important priorities should include *"hydrogen production and carbon storage infrastructure"*. It goes onto state that policy announcements have been piecemeal and slow. The Government has consulted on mechanisms to incentivise CCS and announced a £250m 'Clean Steel Fund':

"However, coverage of these policies is far too narrow and progress has been too slow, as has delivery of the existing £600m capital funds for decarbonising manufacturing. There is still no strategic approach to drive change at the required scale and pace." (page 19)

"A funding mechanism is needed for the operational costs of demonstration and early deployment of industrial electrification and hydrogen use as well as carbon capture and storage (CCS). Faster deployment of announced funds would support jobs, skills and the recovery, while enabling crucial progress on decarbonisation." (page 21)

5.6.5 The Executive Summary sets out the CCC's recommendations by government department. Table 4 sets out recommendations for BEIS. At page 28 these cover CCS and include:

- Choosing a preferred funding model and mechanism for delivering CO_2 infrastructure – by 2020.
- Planning for carbon capture plant to be operational at multiple clusters – by the mid-2020s.
- Supporting business models for CCS designed for use in industry, electricity and hydrogen production and GHG removals – by 2020/ongoing.

5.6.6 Table 4 (page 31) also recommends that BEIS delivers plans to decarbonise the power sector and develops a strategy for low-carbon hydrogen use (across power, industry, transport and buildings), production and infrastructure, aiming for large scale hydrogen trials to begin in the early 2020s.

5.6.7 Chapter 1 of the Progress Report 'A review of the climate challenge after COVID-19' sets out 'Medium-term milestones' at Table 1.1 (pages 57 and 58) to be on track for Net Zero emissions, which include the following where there is a role for CCS:

"Industry – CO_2 transport and storage infrastructure operational, and hydrogen available, at multiple industrial clusters by the mid-2020s.

"Hydrogen – … demonstrate that hydrogen production with CCS can be sufficiently low-carbon to play a significant role."

"Greenhouse gas removals – Initial deployment of engineered greenhouse gas removals (e.g. BECCS in power generation, hydrogen production, industry and/or aviation fuel production), driven by incentives and enabled by CO_2 infrastructure development."

5.6.8 Chapter 2 'Progress since 2008' (page 68) highlights that while in the power sector there has been an increase in generation from low-carbon sources over the decade, deployment of CCS technologies as a means of decarbonising industry has remained limited. CCS (page 80) is seen as a key pillar in achieving Net Zero, and the Progress Report stresses that significant progress is required in the 2020s to get on track to meeting the target by 2050. It goes onto state that CCS is yet to be developed at scale in the UK and that it must be a priority progress area for the 2020s.

5.6.9 Chapter 4 'Progress on emissions, indicators and policy in the last year' at Table 4.2 (pages 114 - 115) again highlights concerns over the lack of progress by the UK Government in terms of setting out a preferred mechanism for CO_2 transport and storage infrastructure and a plan to enable multiple CCS facilities to be operational by the mid-2020s. The Progress Report, however, welcomes (page 117) the commitment by the Government to the £800m CCS Infrastructure Fund to establish CCS in at least two industrial clusters, as well as the £250m Clean Steel Fund adding to support of around £600m for industrial decarbonisation.

5.6.10 Chapter 5 'Planning a resilient recovery' (page 141) refers to how the CCC reconvened its Expert Advisory Group on the Costs and Benefits of Net Zero in May 2020 to consider the macroeconomics of the Covid-19 pandemic and the role of climate change measures in supporting a recovery. The Group was clear that climate change policy should play a central role in efforts to rebuild from Covid-19 and set out a range of short and long-term measures to achieve this. This includes a recommendation (page 142) that investments in low-carbon and climate adaption infrastructure are at the heart of measures to restore economic growth and that this (page 142 - Box 5.4). At pages 152 key priorities for infrastructure investments are identified as including:

"… new hydrogen and carbon capture and storage (CCS) infrastructure which will be needed to support the next phase of the net-zero transition."

5.6.11 Chapter 6 'What is needed now - UK climate policy' sets out the CCC's view on priorities for the UK Government in terms of achieving net zero. These include (page 167) showing clear leadership on CCUS and hydrogen with concrete and funded plans for deploying CCUS in the mid-2020s and developing a strategy for low-carbon hydrogen production and use. Page 181 goes on to state that UK industry can be decarbonised to near-zero emissions without offshoring and that government must implement an approach to incentivise industries to reduce emissions through energy and resource efficiency, fuel switching and CCS, amongst other measures.

5.6.12 The Progress Report sets out a number of priorities for the Energy White Paper ('EWP') (page 184), including that:

"Carbon Capture and Storage is a necessity, not an option, for the UK's net-zero objectives. Plans should be delivered for CCS to be operational at multiple industrial clusters from the mid-2020s, with ambition for scaling up infrastructure beyond this.

Low-carbon hydrogen is critical to achieving Net Zero, and needs to be deployed at scale during the 2020s. Given the potential of the fuel across multiple sectors, a cross-cutting vision and strategy for a hydrogen economy will be required from Government, with production and use starting from the early 2020s. Risk sharing mechanisms for the first users and producers of low-carbon hydrogen are likely to be required, in order to develop a market for low-carbon hydrogen."

5.6.13 It is therefore clear that CCS/CCUS is at the heart of the CCC's priorities and recommendations for government. The Proposed Development is consistent with these priorities and recommendations. It will deliver the UK's first major power project with CCS/CCUS and the first decarbonised industrial cluster on Teesside, both by the mid-2020s (broadly in line with the timescales recommended by the CCC), while also ensuring the necessary infrastructure is in place to support the production of low-carbon hydrogen.

5.7 The Ten Point Plan for a Green Industrial Revolution (HM Government, November 2020)

5.7.1 'The Ten Point Plan for a Green Industrial Revolution - Building back better, supporting green jobs, and accelerating out path to net zero', was published on 18 November 2020 and is aimed at delivering a 'Green Industrial Revolution' in the UK, with the foreword by the Prime Minister stating that the Ten Point Plan will aim to mobilise £12 billion of government investment and potentially three times as much from the private sector, to create and support up to 250,000 green jobs.

5.7.2 The Introduction to the Ten Point Plan (pages 5 - 6) states that:

"We will generate new clean power with offshore wind farms, nuclear plants and by investing up to half a billion pounds in new hydrogen technologies. We will use this energy to carry on living our lives, running our cars, buses, trucks and trains, ships and planes, and heating our homes while keeping bills low. And to the extent that

we still emit carbon, we will pioneer a new British industry dedicated to its capture and return to under the North Sea…"

5.7.3 The 'Ten Points' of the Plan are summarised at page 7 of the document. Those of particular relevance to the Proposed Development are:

- Point 2 – Driving the Growth of Low Carbon Hydrogen.
- Point 8 – Investing in Carbon Capture, Usage and Storage (CCUS).

5.7.4 Point 2 'Driving the Growth of Low Carbon Hydrogen' is covered at pages 10 - 11 of the Ten Point Plan. It highlights how hydrogen could provide a clean source of fuel and heat for our homes, transport and industry and recognises the potential role of CCUS in hydrogen production (by capturing the CO_2 created when using natural gas to create hydrogen). It refers to an aspiration to create "hubs" where renewable energy, CCUS and hydrogen congregate that will put our industrial "SuperPlaces" at the forefront of technological development. It goes on to state that:

"Producing low carbon hydrogen at scale will be made possible by carbon capture and storage infrastructure, and we plan to grow both of these new British industries side by side so our industrial 'SuperPlaces' [Teesside is identified as a key location for green industries and technology] *are envied around the world."*

5.7.5 Point 8 'Investing in Carbon Capture, Usage and Storage (CCUS)' is dealt with at pages 22 - 23 of the Ten Point Plan. The Ten Point Plan states that CCUS will be an exciting new industry to capture the carbon we continue to emit and revitalise the birthplaces of the first Industrial Revolution. It states that the Government's ambition is to capture 10Mt of CO_2 a year by 2030, the equivalent of four million cars' worth of annual emissions. It goes on to set out the Government's commitment to invest up to £1 billion to support the establishment of CCUS in four industrial clusters, creating SuperPlaces in areas such as the North East, the Humber, North West, Scotland and Wales. The Government will also bring forward details in 2021 of a revenue mechanism to bring through private sector investment into industrial carbon capture and hydrogen projects via our new business models to support these projects.

5.7.6 The Ten Point Plan (page 24) highlights the function and necessity of CCUS in achieving a green economy and the Government's commitment to establish CCUS in two industrial clusters by the mid-2020s:

"CCUS technology captures carbon dioxide from power generation, low carbon hydrogen production and industrial processes, storing it deep underground where it cannot enter the atmosphere. This technology will be globally necessary, but no one country has yet captured the market. The UK has an unrivalled asset – our North Sea, that can be used to store captured carbon under the seabed. Developing CCUS infrastructure will contribute to the economic transformation of the UK's industrial regions, enhancing the long-term competitiveness of UK industry in a global net zero economy. It will help decarbonise our most challenging sectors, provide low carbon power and a pathway to negative emissions. We will establish CCUS in two industrial

clusters by mid 2020s, and aim for four of these sites by 2030, capturing up to 10 Mt of carbon dioxide per year. Developed alongside hydrogen, we can create these transformative "SuperPlaces" in areas such as the heart of the North East, the Humber, North West and in Scotland and Wales. Our £1 billion CCUS Infrastructure Fund will provide industry with the certainty required to deploy CCUS at pace and at scale. These clusters will be the starting point for a new carbon capture industry, which could support up to 50,000 jobs in the UK by 2030, including a sizeable export potential. Alongside this, we will bring forward details in 2021 of a revenue mechanism to bring through private sector investment in industrial carbon capture and hydrogen projects, to provide the certainty investors require."

5.7.7 The Proposed Development will establish CCUS within an industrial cluster on Teesside. It will not only capture CO_2 from industrial emitters and power generation but, as referred to above, will also support the future development of hydrogen production on Teesside. It will therefore support delivery of Points 2 and 8 of the Ten Point Plan and the creation of the type of *"hub"* or *"SuperPlace"* envisaged by the Plan where renewable energy, CCUS and hydrogen technologies will congregate and generate significant numbers of jobs.

5.8 National Infrastructure Strategy: Fairer, faster, greener (HM Treasury, November 2020)

5.8.1 The National Infrastructure Strategy (the 'NIS') was published on 25 November 2020, only a week after the Prime Minister's Ten Point Plan. The NIS sets out the Government's plans to deliver an infrastructure revolution in the UK, while *"levelling the country up"* and achieving its Net Zero target by 2050. It also provides the Government's formal response to the National Infrastructure Commission's recommendations on infrastructure provision in their National Infrastructure Assessment (July 2018).

5.8.2 Chapter 2 'Levelling up the whole of the UK' (page 27) highlights how the Government wants to use infrastructure to unite and level up the UK by prioritising those areas that have received the least support in the past and to create "regional powerhouses". One of the measures identified to achieve this, is backing new green growth clusters in traditional industrial areas such as Teesside, with investment in CCS, offshore wind, port infrastructure and low-carbon hydrogen production.

5.8.3 A key theme of the NIS is 'Decarbonising the economy and adapting to climate change' and this is dealt with at Chapter 3. The Government identifies that (page 48) new technologies and skills will need to be developed to continue decarbonising and recognises that it will have a role to play in driving both the development and deployment of such technologies, including:

"Carbon Capture and Storage to remove up to 90% of the carbon dioxide emissions from gas-fired power stations and industrial factories, including those making hydrogen, as well as to support greenhouse gas removal technologies to offset some emissions from the hardest to decarbonise sectors.

Investment in these areas, where the UK has competitive advantage, can create the knowledge and skills needed for a green industrial revolution, driving leadership in the industries of the future, reducing national and global emissions, as well as providing the platform for significant economic growth. Where these investments are brought together to create place-based industrial clusters they can transform local economies, creating productive jobs, developing specialist skillsets, and attracting private investment. For example, the North East of England could become a home of choice for companies delivering carbon capture and storage; making hydrogen power a part of daily life; and designing, building and maintaining offshore wind turbines." [underlining added]

5.8.4 The future role of CCS in contributing to the Net Zero target is further underlined in Chapter 3 (pages 50 - 53). In terms of power, it is recognised that even by 2050, given the intermittent nature of renewables, there will still be a requirement for more reliable sources of power, from nuclear or power stations that burn hydrogen or gas with CCS. Power stations with CCS could provide valuable low carbon electricity when renewables are not generating by capturing the emissions from biomass or gas-fired generation. CCS is also seen as essential to decarbonising large parts of industry, producing low carbon hydrogen and in delivering GHG removal technologies permanently locking away CO_2.

5.8.5 Importantly (page 53), the NIS recognises that CCS/CCUS technology has not yet been delivered at scale and that there is a key role for government to play in bringing this forward. Consistent with the Ten Point Plan, it therefore sets out the Government's increased ambition to support CCS with £1 billion of funding (up from £800m) to bring forward four CCS clusters by the end of the decade, with construction to begin on two by the mid-2020s with the aim of capturing 10Mt of CO_2 a year by 2030.

5.8.6 The Proposed Development is clearly in line with the Government's ambitions to see the development of CCS/CCUS in the power and industrial sectors and the production of hydrogen as part of decarbonised clusters in locations such as the North East by the mid-2020s.

5.9 The Energy White Paper (HM Government, December 2020)

5.9.1 'The Energy White Paper – Powering our Net Zero Future' ('EWP'), was presented to Parliament in December 2020 and builds on the Prime Minister's Ten Point Plan. At the core of the EWP is the commitment to achieve Net Zero and tackle climate change. The EWP seeks to put in place a strategy for the wider energy system that transforms energy, supports a green recovery and creates a fair deal for consumers (page 4). As with the Ten Point Plan, the EWP confirms the Government's support for CCUS (drawing upon the resource provided by the North Sea) and new hydrogen technologies.

5.9.2 The Government estimates (Introduction, page 15) that the measures in the EWP could reduce emissions across power, industry and buildings by up to 230Mt CO_2 in the period to 2032 and enable further savings in other sectors such as transport. In

doing so, these measures could support up to 220,000 jobs per year by 2030. These figures include the energy measures from the Ten Point Plan as well as additional measures set out in the EWP. However, the EWP recognises that more will need to be done to meet key milestones on the journey to Net Zero.

5.9.3 The EWP (pages 16 - 17) provides an overview of the Government's key policies and commitments to put the UK on the course to Net Zero. These are grouped under a number of headings, including 'Transform Energy', 'Support a Green Recovery from Covid-19' and 'Creating a Fair Deal for Consumers'. Those of particular relevance to the Proposed Development are:

"TRANSFORM ENERGY

Supporting the deployment of CCUS in four industrial clusters including at least one power CCUS project, to be operational by 2030 and putting in place the commercial frameworks required to help stimulate the market to deliver a future pipeline of CCUS projects.

SUPPORT A GREEN RECOVERY FROM COVID-19

Increasing the ambition in our Industrial Clusters Mission four-fold, aiming to deliver four low-carbon clusters by 2030 and at least one fully net zero cluster by 2040.

Investing £1 billion up to 2025 to facilitate the deployment of CCUS in two industrial clusters by the mid-2020s, and a further two clusters by 2030, supporting our ambition to capture 10Mt per year by the end of the decade.

Working with industry, aiming to develop 5GW of low-carbon hydrogen production capacity by 2030."

5.9.4 Chapter 2 of the EWP deals with 'Power' with the stated goal being to use electricity to enable the transition away from fossil fuels and decarbonise the economy cost-effectively by 2050. Figure 3.2 'Electricity demand, Net Zero scenarios' (page 42) highlights how electricity demand could double by 2050 as electricity replaces the use of petrol and diesel in transport and to some extent, gas for heating. This would require a four-fold increase in clean electricity generation with the decarbonisation of electricity being required to underpin the delivery of the Net Zero target.

5.9.5 Despite the push to increase clean electricity generation and decarbonise the power sector, the EWP states that the Government is not targeting a particular generation mix by 2050 and its view remains that the electricity market should determine the best solutions for very low emissions and reliable supply, at a low cost to consumers (page 42). While the EWP (page 43) states that a low-cost, Net Zero consistent system is likely to be composed predominantly of wind and solar, in order to ensure the system is reliable, it needs to be complemented by technologies which provide power, or reduce demand, when the wind is not blowing or the sun does not shine. This includes gas with CCS and short-term dispatchable generation providing peaking capacity, which can be flexed as required.

5.9.6 Figure 3.4 of the EWP (page 44) details different potential electricity mixes to 2050 and it is notable that gas with CCS is an important component of those mixes. Furthermore, linked to the commitment to support the deployment of at least one power CCUS project, the EWP (page 47) recognises that:

"In the power sector, gas-fired generation with CCUS can provide flexible, low-carbon capacity to complement high levels of renewables. These characteristics mean that deployment of power CCUS projects will play a key role in the decarbonisation of the electricity system at low cost."

We will support at least one power CCUS plant to come forward and be operational by 2030 and will put in place a commercial framework which will enable developers to finance the construction and operation of a power CCUS plant and stimulate a pipeline of projects. This will enable at least one power CCUS project to be developed in one of the four industrial clusters as part of our mission to decarbonise them …"

5.9.7 Chapter 3 "Energy System' of the EWP addresses 'The Role of Natural Gas' in a Net Zero world (page 84). It confirms that natural gas currently represents almost 30% of final energy consumption and 40% of electricity generation (page 84) and notes that we will continue to rely on natural gas for some years, even as we work to largely eliminate carbon emissions from the energy system, including those from gas. It goes onto state:

"We will therefore make sure the natural gas markets and networks evolve in a way which enables continued investment and ensure secure supplies but also promotes the use of low-carbon options, wherever possible. This will reduce emissions now and help build the networks of the future which will need to accommodate technologies such as hydrogen and Carbon Capture, Usage and Storage. We will need investment in the gas network to support the ambition set out in the Prime Minister's Ten Point Plan for a potential Hydrogen Town before the end of the decade."

5.9.8 The challenge of decarbonising industry is covered at Chapter 5 'Industrial energy' of the EWP, in particular, the need for emissions from industry to fall by around 90% from today's levels by 2050 if the Net Zero target is to be met (page 118). The EWP (page 120) highlights how about half of all emissions from manufacturing and refining are concentrated in the UK's major industrial clusters (Figure 8.1). These *"hubs"* are seen as critical drivers of local and regional economic activity and a vital component of the UK's national economy. This includes Teesside with 3.9Mt CO_2 emissions per annum. It goes on to state (page 122):

"Improved efficiency in the energy performance of buildings and industrial processes will lay the groundwork for the transformation of industrial energy. But we cannot rely on energy efficiency alone to reduce emissions in line with our 2050 goal. Manufacturing industry will need to capture their carbon for onward storage and switch from using fossil fuels to low-carbon alternatives." [underlining added]

5.9.9 The actions identified by the EWP to decarbonise industrial emissions (page 124) include to, in line with Ten Point Plan, increase the 'Industrial Clusters Mission' to support the delivery of four low-carbon clusters by 2030 and at least one fully net

zero cluster by 2040. The EWP states that the Government will focus on the UK's industrial clusters:

"… centres where related industries have congregated and can benefit from utilising shared clean energy infrastructure, such as CCUS and low-carbon hydrogen production and distribution. Decarbonisation in clusters will enable economies of scale, reducing the unit cost for each tonne of carbon abated, while clusters provide high quality jobs which tend to pay above the UK average wage."

5.9.10 The EWP notes (page 124) that many clusters are located in regions in need of economic revitalisation and that decarbonising those clusters can act as a driver of prosperity for the surrounding areas. Furthermore, that investments in key technologies like CCUS and hydrogen, will be crucial to enhancing local economic growth and creating jobs together with prosperity.

5.9.11 CCUS is dealt with in detail at pages 125 and 126. The EWP confirms that the deployment of CCUS is fundamental to the decarbonisation of energy intensive industries such as steel, cement, oil refining and chemicals. It highlights the role of CCUS in helping secure the long-term future of these industries and enabling the production of low-carbon hydrogen at scale. It reaffirms the Government's commitment to invest £1 billion (up from the £800m promised in the CCS Infrastructure Fund) up to 2025 to facilitate the deployment of CCUS in two industrial clusters by the mid-2020s, and a further two clusters by 2030, supporting its ambition to capture 10Mt CO_2 emissions per year by the end of the decade. It stresses how the UK is in a strong position to become a global technology leader in CCUS with the potential to store 78 billion tonnes of CO_2. Deployment of CCUS could create new markets for UK businesses, at home and abroad, as other countries look to meet their emissions reduction commitments and could support 50,000 jobs in UK by 2030.

5.9.12 The important supporting role of CCUS in the production of clean hydrogen is underlined at pages 127 and 128 of the EWP.

5.9.13 The Proposed Development will help deliver key Government policies and commitments on CCUS and hydrogen set out in the EWP. It combines power with CCUS at commercial scale, and with its industrial CO_2 gathering network, will provide the necessary infrastructure to make a low-carbon industrial cluster on Teesside a reality by the mid-2020s. The Proposed Development will also help create the right conditions to support the production of low-carbon hydrogen on Teesside and act as a driver for growth and jobs within the local and regional economy.

5.10 Industrial Decarbonisation Strategy (HM Government, March 2021)

5.10.1 The Industrial Decarbonisation Strategy (the 'IDS') is the first strategy published by a major economy which sets out how industry can decarbonised in line with Net Zero, while remaining competitive and without pushing emissions abroad. It builds on the Ten Point Plan and sets out the Government's vision for a prosperous, low carbon

UK industrial sector by 2050 and aims to provide industry with the long-term certainty it needs to invest in decarbonisation.

5.10.2 Ministerial Foreword (page 6) emphasises that the 2020s will be crucial to industrial decarbonisation, with the UK needing to deploy key technologies such as CCUS while beginning the journey of switching from fossil fuel combustion to low carbon alternatives such as hydrogen.

5.10.3 Chapter 1 'Why we need a strategy and our approach' sets out the Government's ambition for decarbonising industry in line with Net Zero. The expectation is that emissions will need to reduce by at least two-thirds by 2035 and by at least 90% by 2050, with 3 Mt CO_2 per annum captured through CCUS and a significant switching to low carbon fuels by 2030. Significantly, the IDS (page 18) recognises that government should play a key role in the delivery of large infrastructure projects for key technologies such as CCUS and hydrogen networks where there is a sharing of benefits and the risk or cost is too great for the private sector.

5.10.4 Chapter 2 Getting investors to choose low carbon' confirms the Government's commitment (Action 2.2) to put in place funding mechanisms to support the deployment and use of CCUS and low carbon hydrogen infrastructure. It states that (pages 29-30):

"CCUS will be crucial to reaching net zero, and low carbon hydrogen has the potential to play a key role in enabling the economic transformation of the UK's industrial regions. With both technologies at early stages of development, government will need to play an active role in overcoming market failures; sharing the risk and costs of scaling up deployment of both CCUS and low carbon hydrogen.

…. We have already committed to a £1 billion CCS Infrastructure Fund to provide industry with certainty to deploy CCUS at pace and scale, alongside a £240 million Net Zero Hydrogen Fund. Later in 2021 will bring forward further details of the revenue mechanism to support business models for both industrial carbon capture and low carbon hydrogen projects."

5.10.5 Chapter 4 'Adopting low-regret technologies and building infrastructure' sets out support for the deployment of CCUS on industrial sites in clusters to capture and store around 3Mt CO_2 per annum by 2030 as well as increasing amounts of fuel switching to low carbon hydrogen during the 2020s. The aim (page 48) is by the mid-2020s that there will be two industrial clusters connected to CCUS infrastructure, with another two clusters by 2030, as well as low carbon fuels being tested and adopted across many industrial users.

5.10.6 Chapter 4 confirms (page 48) that the UK's six industrial clusters (Teesside alone accounts for 3.9Mt CO_2 per annum mainly from chemicals), account for half of industrial emissions and are well placed for early deployment of low carbon infrastructure as costs and risk can be shared between multiple industrial sites. The aim (Action 4.1, page 51) is to support deployment of CCUS on industrial sites in clusters to capture and store around 3Mt CO_2 per annum by the mid-2020s and between 8 -14 Mt CO_2 per annum by 2050. Chapter 4 stresses that without CCUS

emissions from current industrial processes cannot be reduced to levels consistent with Net Zero. Reference is made to the Government plans for where and when infrastructure should be built, with the potential approach to this detailed in the CCUS Cluster Sequencing Consultation (February 2021). This sets out a potential two-phase process. The first phase would determine which cluster locations would be prioritised; the second phase would allocate CCUS programme support, including the CCS Infrastructure Fund and revenue support, to individual projects within the clusters. The IDS confirms that this approach will be refined in response to consultation feedback.

5.10.7 With regard to fuel switching (Action 4.2, pages 51 and 52), the Chapter 4 of the IDS confirms that the Government is committed to developing a low carbon hydrogen economy in the UK. The Government sees it as critical to demonstrate fuel switching to hydrogen in industrial sites in parallel to ramping up low carbon hydrogen production.

5.10.8 Chapter 6 'Accelerating innovation of low carbon technologies' recognises (Action 6.2, page 71) the need for government support to accelerate progress in demonstrating CCUS from a wide range of industrial sources.

5.10.9 Chapter 8 'Levelling up' (Action 8.1, page 84) highlights the significant potential, particularly across the UK's industrial clusters, to create new jobs through the deployment of low carbon infrastructure and technologies.

5.10.10 The Proposed Development clearly supports a number of the key actions set out in the IDS, not least to decarbonise one of the UK's industrial clusters and capture and store around 3Mt of industrial CO_2 emissions per annum by the mid-2020s, rising to between 8 -14 Mt CO_2 per annum by 2050.

5.11 North Sea Transition Deal (Department for Business, Energy & Industrial Strategy and OGUK, March 2021)

5.11.1 The North Sea Deal is a transformational sector deal for the offshore oil and gas sector in recognition of the key role that it can play in helping the UK meets its net zero commitments. The document recognises (Foreword, page 6) that with declining output of hydrocarbons from the UK Continental Shelf ('UKCS') and a projected decline in domestic demand, there is a clear need for determined action to be taken to build on the proven capabilities and skills within the existing sector to support the transition to net zero. It continues:

"The UK already has the capability and skills within the existing sector to lead in new and emerging energy technologies such as Carbon Capture, Usage and Storage (CCUS) and the hydrogen economy as well as to support the growth of new sectors such as offshore wind.

… Delivering large-scale decarbonisation solutions will strengthen the position of the existing UK energy sector supply chain in a net zero world, securing new high-value jobs in the UK, supporting the development of regional economies and competing in clean energy export markets."

5.11.2 The Executive Summary (page 8) states that the North Sea Deal is aimed a delivering on the commitments set out in the oil and gas chapter of the EWP and is closely aligned with the Prime Minister's Ten Point Plan. It do this through the implementation of a number of commitments and measures, including supporting up to 40,000 direct and indirect supply chain jobs in decarbonising UKCS production and the CCUS and hydrogen sectors.

5.11.3 The Deal is built on five key outcomes. These are seen as being closely interlinked, meaning that they must be delivered as an integrated whole for the Deal to achieve its full potential. These include:

- CCUS – a commitment to deploy of two CCUS clusters by the mid-2020s and a further two by 2030. This commitment aims to unlock investment of £2-3 billion in CCUS transport and storage infrastructure from the sector to underpin widespread roll out. The sector's experience and capabilities offshore will enable efficiencies and cost reductions to be achieved as new CCUS projects are executed.
- Hydrogen – this is essential to meet the net zero commitment. The UK has unparalleled CCS sites that it can maximise to scale up low hydrogen production. The oil and gas sector is positioned to enable the production of low-carbon hydrogen at scale as part of a long-term competitive market, supporting the UK's ambition to deliver 5 gigawatts of low carbon hydrogen production capacity by 2030 supporting up to 8,000 jobs.
- Supply chain transformation – the Deal will focus on supporting the transformation of the oil and gas supply chain to service low-carbon energy sectors. The UK's energy supply chain should be competitively positioned to seize the opportunities present by offshore electrification, CCUS and hydrogen both in the domestic market and internationally.
- People & skills – the Deal will support up to 40,000 high-quality direct and indirect supply chain jobs. Many of the skills present in the oil and gas sector are transferable across the wider energy sector. Offshore renewables, as well as the future CCUS and hydrogen industries will rely heavily on many of the current skillsets in the oil and gas industry.

5.11.4 The Proposed Development clearly aligns with the commitments and intended outcomes of the North Sea Transition Deal. It is being promoted by a partnership of companies that have significant experience in the oil and gas sector and who are able to draw upon their offshore capabilities and skills in delivering CCUS at scale on Teesside, which in turn would support the potential for low carbon hydrogen production in the area. The Proposed Development will therefore, consistent with the Deal, make a positive contribution to the transformation of the oil and gas sector.

5.12 Summary

5.12.1 Recent UK energy and climate change policy has established clear objectives for decarbonising the power and industrial sectors and the transformation of the oil and

gas sector in order to achieve the Government's legally binding commitment to achieve net zero in terms of greenhouse gas emissions by 2050. This policy is both important and relevant to decision-making in respect of the Proposed Development.

5.12.2 It is evident from the Applicants' review of energy and climate change policy that the Government sees CCS/CCUS as playing a key role in delivering the commitment of net zero by 2050. In particular:

- The Government and the CCC have confirmed that new gas-fired generating capacity with CCS/CCUS will be required to provide vital back-up to intermittent renewable generation so as to ensure the security of UK electricity supplies and that the system can meet peak electricity demand. The Government has also committed to support the delivery of *"at least one power CCUS plant"* by 2030.
- The deployment of CCS/CCUS technology is seen as fundamental to the decarbonisation of the UK's energy intensive heavy industries such as steel, cement, oil refining and chemicals and securing the long-term future of these industries within the wider economy. Teesside alone generates 3.9Mt CO_2 emissions per annum.
- The Government has committed to invest £1 billion to facilitate the deployment of CCS/CCUS in two industrial clusters by the mid-2020s, and a further two clusters by 2030, so as to support its ambition to capture 10Mt CO_2 emissions per year by the end of the decade. Teesside, with its concentration of heavy industries, including chemicals and access to North Sea storage sites, is identified as one of the key potential locations for a decarbonised industrial cluster.
- There is Government support for the large-scale manufacture of hydrogen for use in the power sector and for domestic heating, including a £240 million fund. Gas reforming (the use of natural gas to manufacture hydrogen) is likely to be the cheapest source of hydrogen, at least initially, compared to electrolysis. Pairing gas reforming with CCS/CCUS is critical to delivering low carbon hydrogen production.
- The Government seeking to transform the oil and gas sector through the development of technologies such as CCS/CCUS and low carbon hydrogen productions. These technologies will be able to draw upon the proven capabilities and skills within the oil and sector, its existing infrastructure and private investment potential, thereby helping to support its supply chain and skilled workforce.

5.12.3 The Proposed Development will contribute toward the delivery of key energy and climate change policy objectives – most importantly net zero by 2050. It includes a Low Carbon Electricity Generating Station with CCS/CCUS at commercial scale, while importantly the CO_2 Gathering Network and other CO_2 infrastructure will underpin the establishment of a decarbonised industrial cluster on Teesside by the mid-2020s. This will not only facilitate the decarbonisation of existing heavy industries in the area, capturing 4Mt CO_2 per annum with the scope to increase this to 10Mt CO_2 per

annum in the future, but also provide the infrastructure to support the potential for the future large-scale manufacture of low carbon hydrogen, acting as a driver for growth and jobs within the local and regional economy. Furthermore, it will make a very positive contribution to the transformation of the oil and gas sector.

5.12.4 The Proposed Development is clearly in accordance with current and emerging UK energy and climate change policy and this should be afforded significant weight in the determination of the Application.

6.0 THE ASSESSMENT OF THE PROPOSED DEVELOPMENT AGAINST POLICY

6.1 Introduction

6.1.1 This section provides an assessment of the Proposed Development against policy, notably the relevant NPSs, given that Section 104 of the PA 2008 requires the SoS to determine applications for NSIPs in accordance with the relevant NPSs.

6.1.2 The assessment of the Proposed Development against the NPSs has been structured so as to follow the relevant 'assessment principle' and 'generic impact' headings set out in EN-1 and also to take account of the 'assessment and technology specific considerations' contained within EN-2, EN-4 and EN-5 in relation to fossil fuel generating stations, gas supply infrastructure and gas and oil pipelines and electricity transmission infrastructure, where these are not covered by the assessment principles and generic impacts of EN-1. Each heading references the relevant part or section of the NPSs.

6.1.3 Although the focus of this section is principally upon conformity with the NPSs (as these are the primary basis for decisions on NSIPs by the SoS); the Applicants have also had regard to the compliance of the Proposed Development with relevant policies contained within the NPPF and the statutory development plan.

6.2 Conformity with the National Policy Statements

6.2.1 An assessment of the conformity of the Proposed Development with EN-1, EN-2, EN-4 and EN-5 is provided below in respect of the relevant assessment principles, generic impacts and assessment and technology specific considerations.

Assessment Principles

6.2.2 Part 4 of EN-1 sets out 'General points' that the SoS should take into account in decision-making on NSIPs, in addition to a number of key assessment principles that both applicants and the SoS should have regard to in preparing and determining applications for development consent.

6.2.3 The majority of the assessment principles in EN-1 are of relevance to most types of nationally significant energy infrastructure. A number of these are also referred to within EN-2, EN-4 and EN-5 in relation to the types of technology that are covered by them in ‘assessment and technology-specific information’ and are therefore also dealt with below and the relevant part of the NPS is referenced.

General Points (EN-1, 4.1)

6.2.4 EN-1 'General points' (paragraph 4.1.2) reiterates the urgency of the 'need' for the types of infrastructure covered by the energy NPSs and again confirms that the SoS should start with a presumption in favour granting development consent for energy NSIPs.

6.2.5 Paragraph 4.1.3 goes on to state that in considering applications for energy NSIPs, and in particular, when weighing their adverse impacts against their benefits, the SoS should consider:

- the potential benefits including the contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and
- the potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.

6.2.6 Paragraph 4.1.4 goes on to state that in this context, the SoS should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels.

6.2.7 With regard to the above, the Need Statement (Document Ref. 5.2) demonstrates the clear need for the Proposed Development, not just in terms of providing new electricity generating capacity but also contributing toward the decarbonisation of power and industry on Teesside. Furthermore, Section 5 of this Planning Statement sets out how the Proposed Development is in accordance with key UK Government energy and climate change policy and will help deliver Government's net zero by 2050 commitment. Section 7 of the Planning Statement provides an assessment of the key benefits and adverse impacts of the Proposed Development. It shows that the Proposed Development will have a number of substantial benefits and that these clearly outweigh its adverse impacts.

6.2.8 Paragraph 4.1.5 confirms that matters that the SoS may consider both *"important and relevant"* to decision making on energy NSIPs. However, in the event of a conflict between these or any other documents and an NPS, the NPS prevails. In the case of the Proposed Development, it is considered that UK Government energy and climate change policy is particularly important and relevant to the determination of the DCO Application. That policy sets out a number of key objectives for achieving Net Zero by 2050, including the decarbonisation of the power and industrial sectors and production of cleaner fuels such as hydrogen – the Proposed Development will make a very significant contribution to all of these.

6.2.9 The NPPF and the statutory development plan may also be important and relevant to the Application. Compliance with the NPPF and local development plan policies is considered later within this section.

6.2.10 Paragraph 4.1.7 confirms that the SoS should only impose 'requirements' (similar to planning conditions) in relation to a development consent where these satisfy relevant guidance and are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise and reasonable in all other respects.

6.2.11 The Applicants have proposed a number of requirements within the draft DCO (Document Ref. 2.1) that, amongst other matters, are intended to control the detailed design of the Proposed Development in addition to its construction and

operation in order to ensure that it accords with the EIA carried out and does not result in unacceptable impacts or effects. In preparing the draft requirements the Applicants have had regard to other relevant recent DCOs and relevant guidance; notably that contained within the NPPF (paragraphs 203-206) and the PPG ('Use of planning conditions') and the PINS Advice Note 15 'Drafting Development Consent Orders' (July 2018). The requirements are listed at Schedule 2 of the draft DCO and their intended purpose is set out within the Explanatory Memorandum (Document Ref. 2.2).

6.2.12 Paragraph 4.1.8 states that SoS may take into account any development consent obligations (under Section 106 of the TCPA 1990 as amended by Section 174 of the Act) that an applicant agrees with local authorities. To be required development consent obligations must satisfy broadly similar tests to requirements; they must be relevant to planning, necessary to make the development acceptable in planning terms, directly related to the development, fairly and reasonably related in scale and kind to the development and reasonable in all other respects (NPPF - paragraphs 203-206 and the PPG 'Planning obligations').

6.2.13 The Applicants' assessment of the Proposed Development, notably through the EIA, has identified some effects that require mitigation. However, the necessary mitigation has either been embedded within the design of the Proposed Development or will be secured through the proposed DCO requirements and therefore, taking into account the tests in the NPPF and PPG, at this stage of the application process, no mitigation has been identified by the Applicants, the host local authorities (RCBC and STBC) or other consultees or stakeholders that would require a development consent obligation in order to make the Proposed Development acceptable in planning terms. The Commitments Register (ES Volume III, Appendix 25A (Document Ref. 6.4) confirms how the mitigation and commitments set out in the ES will be secured.

6.2.14 Paragraph 4.1.9 confirms that in bringing forward energy infrastructure, the applicant will have made a judgement as to its financial and technical feasibility. It goes on to state that where the SoS considers, based on the information provided in the application, that financial and technical feasibility have been properly assessed, they are unlikely to be relevant to the SoS's decision-making.

6.2.15 With regard to the above, the Applicants have made a decision to proceed with the Application based on a number of commercial and financial considerations. Paragraph 3.3.6 of EN-1 states that *"…it is for industry to propose the specific types of development that they assess to be viable…"* within the framework established by the Government. The Funding Statement (Document Ref. 3.3) confirms that the Applicants are able to fund any compulsory acquisition that is required to deliver the Proposed Development.

Environmental Statement (EN-1, 4.2)

6.2.16 EN-1 (paragraph 4.2.1) states that NSIPs that are subject to the European EIA Directive (to be read now as referring to the EIA Regulations) must be accompanied

by an ES describing the aspects of the environment likely to be significantly affected by the Proposed Development. It highlights that the European EIA Directive specifically refers to effects on human beings, fauna, flora, soil, water, air, climate, the landscape, material assets and cultural heritage and the interaction between them. It goes on to state that the assessment of effects in the ES should cover direct and indirect effects, both permanent and temporary, cumulative effects, positive and negative effects and measures for avoiding or mitigating significant adverse effects.

6.2.17 Paragraphs 4.2.2 - 4.2.11 provide further guidance on the matters that should be covered within the ES for the purposes of SoS decision making.

6.2.18 The Application includes an ES – Volumes I, II and III (Document Refs. 6.2 - 6.4) and a Non-Technical Summary (Document Ref. 6.1). In advance of preparing the ES, a 'Scoping Opinion' was obtained from PINS (dated 2 April 2019), which is provided at ES Volume III, Appendix 1B (Document Ref. 6.4.2). The scope and coverage of the ES has taken account of the Scoping Opinion and ES Volume I Chapter 2 'Assessment Methodology' (Document Refs. 6.2) sets out the approach and methodology that has been adopted for the EIA of the Proposed Development.

6.2.19 As required by EN-1, the ES for the Proposed Development includes the following:

- An assessment of the environmental, social and economic effects of the Proposed Development, including direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects for all its stages (e.g. construction, operation, decommissioning) as well as significant residual effect and also the measures envisaged for avoiding and mitigating any significant adverse effects. The approach and methodology taken to the assessment of environmental effects is set out at ES Volume I Chapter 2 'Assessment Methodology'. Furthermore, the technical chapters of the ES (ES Volume I, Chapters 8 - 25 identify the likely significant effects of the Proposed Development, the mitigation measures (where required) and the residual effects. The ES, in the assessment of effects, distinguishes between the different stages of the Proposed Development. The following technical chapters are included in the ES:
  - Chapter 8 'Air Quality'
  - Chapter 9 'Surface Water, Flood Risk and Water Resources'
  - Chapter 10 'Geology and Hydrogeology'
  - Chapter 11 'Noise and Vibration'
  - Chapter 12 'Terrestrial Ecology and Nature Conservation'
  - Chapter 13 'Aquatic Ecology'
  - Chapter 14 'Marine Ecology and Nature Conservation'

- Chapter 15 ‘Ornithology’
- Chapter 16 ‘Traffic and Transportation’
- Chapter 17 ‘Landscape and Visual Amenity’
- Chapter 18 ‘Archaeology and Cultural Heritage’
- Chapter 19 ‘Marine Heritage’
- Chapter 20 ‘Socio-economics and Tourism’
- Chapter 21 ‘Climate Change’
- Chapter 22 ‘Major Accident Hazards and Natural Disasters’
- Chapter 23 ‘ Population and Human Health’
- Chapter 24 ‘Cumulative and Combined Effects’
- Chapter 25 ‘Summary of Significant Effects’

- An explanation of the elements of the Proposed Development where it has not been possible to fix details in advance of the submission of the Application and where flexibility is required (given that it is a ‘First-of-its-Kind’ project), and the approach that has been taken to assessing the effects that may result. In this respect, the Applicants have adopted the principles of the 'Rochdale Envelope' and assessed through the EIA maximum 'worst case' dimensions and design parameters. Where this approach has been applied it is explained in each relevant chapter of ES Volume I. The approach that has been taken is explained at ES Volume I, in Chapters 4 ‘The Proposed Development’ and 6 ‘Alternatives and Design Evolution’. The maximum dimensions and parameters would be controlled and secured through Article 4 'Development consent etc. granted by this Order', Schedule 15 ‘Design Parameters’ and Requirement 3 'Detailed design' (Schedule 2) of the DCO (Document Ref. 2.1) in addition to the Works Plans (Document Ref 4.4).
- Information on the likely significant social and economic effects of the Proposed Development is provided at ES Volume I, Chapter 20 ‘Socio-economic and Tourism’. This includes the benefits of the Proposed Development in terms of employment generation both through direct employment and wider benefits for the economy. It is estimated that up to 2,440 net construction jobs (direct and indirect) would be generated per annum of which 1,220 are expected to be from the local area (the Middlesbrough and Stockton TTWA). Jobs during operation are estimated at up to 130 FTE (direct and indirect) with the majority (110) filled by people from the local area. No significant adverse effects in terms of socio-economics or tourism are predicted during the construction, maintenance, operation of decommissioning of the Proposed Development, and as such, no mitigation is required. It is considered that the Proposed Development will have

an overall positive effect on the local area. The draft DCO includes a requirement (Requirement 30) that will secure an employment and skills plan, to be agreed with RCBC and STBC, to maximise the local employment and training opportunities provided by the Proposed Development.

- ES Volume I, Chapter 24 'Cumulative and Combined Effects' considers how the effects of the Proposed Development could combine and interact with the effects of other planned and consented developments within the area. The approach to assessing cumulative and combined effects is set out at Section 24.3 of Chapter 24. The assessment of combined effects has considered the potential effects of minor significance and above identified within each of the technical assessments reported in Chapters 8 - 23, to interact and combine to affect common receptors, and has concluded that there is potential for the following significant combined effects:
  - moderate adverse combined effects on high value/sensitivity (human) receptors in the vicinity of York Road, Redcar Seafront and the England Coastal Path as a result of evening and night-time noise level effects and visual effects during construction. This is considered to be a worst-case assessment; and
  - moderate adverse effects on users of local businesses, tourism amenities and public rights of way, in the vicinity of South Gare Breakwater and the beach, as a result of short-term, temporary impacts on high value / sensitivity receptors and moderate visual effects during construction.
- The assessment of cumulative effects has considered other developments within 15km of the PCC Site. The potential for cumulative effects to arise, from one or several of these developments in combination with the Proposed Development has been assessed. Through consideration of the available information for each of the identified developments, it has been concluded there is the potential for:
  - significant beneficial cumulative socio-economic effects due to the Proposed Development together with the other developments;
  - a potential moderate adverse cumulative effect upon water quality in Tees Bay due to sediment mobilisation during construction; this effect is no greater than that for the Proposed Development in isolation, and there will be no other significant cumulative effects relating to water, flood risk and water resources;
  - a minor adverse (not significant) cumulative noise effect upon one NSR (NSR3) during the construction phase of the Proposed Development, compared to a negligible adverse effect for the Proposed Development in isolation. A potential worst-case moderate adverse (significant) cumulative effect on residential receptors during CO_2 venting; this is the same significance of effect as that for the Proposed Development alone; all other cumulative noise effects will be of the same magnitude and significance as those for the Proposed Development in isolation;

  - significant, moderate adverse cumulative visual effects would occur at viewpoint 5 (recreational receptors at South Gare Breakwater), viewpoint 8 (recreational and residential receptors at Redcar seafront) and viewpoint 7 (recreational receptors on the England Coast Path, Warrenby) during construction of the Proposed Development, if this is concurrent with the construction and operation of the identified cumulative developments; these effects are no greater than for the Proposed development in isolation; and
  - the Redcar Flats LCTr and the Coastal Fringe LCT are predicted to experience significant cumulative effects during construction; this is the same effect as that for the Proposed Development in isolation and reduces to not significant levels opening (Year 1) and operation (Year 15). The remaining identified LCTr, LCA and LCT are not predicted to experience any significant cumulative effects.

- There will be no significant cumulative effects on air quality, terrestrial ecology, aquatic ecology, marine ecology, ornithology, archaeology and cultural heritage, marine heritage or geology and hydrogeology.

6.2.20 As confirmed above, the draft DCO at Schedule 2 includes appropriate requirements to control and secure the details of the Proposed Development that are still to be finalised to ensure that it will be constructed in accordance with the EIA that has been undertaken. The Commitments Register (ES Volume III, Appendix 25A, Document Ref. 6.4) confirms how the mitigation and commitments set out in the ES will be secured.

Habitats Regulations (NPS EN-1, 4.3)

6.2.21 EN-1 (paragraph 4.3.1) confirms that prior to granting development consent, the SoS must, under the Habitats Regulations, consider whether the Proposed Development may have a significant effect on a European site, or any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans and Proposed Developments. EN-1 continues that the applicant should seek the advice of Natural England ('NE') and provide the SoS with such information as may be reasonably required to determine whether an 'Appropriate Assessment' is required.

6.2.22 The Applicants have prepared a Habitats Regulations Assessment ('HRA') Report for the Proposed Development (Document Ref. 5.13). The Proposed Development Site (the 'Site') lies directly adjacent to (and involves land within) the Teesmouth and Cleveland Coast Special Protection Area ('SPA') and Ramsar Site, which is designated for both breeding birds and non-breeding birds, which visit the SPA/Ramsar between autumn and spring. The SPA and Ramsar have recently been extended to include the dunes and pools immediately north-east of the PCC Site. These areas have been included due to overwintering bird usage. As likely significant effects on the SPA/Ramsar cannot be ruled at the screening stage, the HRA Report includes an Appropriate Assessment and considers in combination effects. The preparation of the HRA Report has been the subject of consultation and discussions with Natural England.

6.2.23 The Appropriate Assessment is provided at Section 6 of the HRA Report and considers the impacts of noise disturbance (construction and decommissioning), atmospheric pollution (operation) and water quality (construction, operation and decommissioning) on the Teesmouth and Cleveland Coast SPA/Ramsar; atmospheric pollution (operation) on the North York Moors Special Area of Conservation ('SAC')/SPA; and disturbance in functionally linked habitats (construction and decommissioning) on the Southern North Sea SAC. The Appropriate Assessment takes account of the mitigation measures that would be implemented during the relevant stages of the Proposed Development. In combination effects of the Proposed Development with other plans and projects – those posing linking impact pathways to the same European sites as the Proposed Development – are addressed at Section 7.

6.2.24 The HRA concludes that following amendments made to the design of the operational development (the PCC Site) to reduce ammonia emissions, it is concluded that with the identified mitigation measures in place to address construction/decommissioning noise and construction, operational and decommissioning water quality impacts on the Teesmouth and Cleveland Coast SPA/Ramsar, there will be no adverse effect on the integrity of any European site either alone or in combination with other plans and projects.

Alternatives (NPS EN-1, 4.4)

6.2.25 Paragraph 4.4.1 confirms that as in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to a Proposed Development is in the first instance a matter of law, which falls outside the scope of the NPS. It goes on, however, to state that from a policy perspective there is no general requirement to consider alternatives or to establish whether a NSIP represents the best option, except that:

- Applicants are obliged to include in their ES, as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.
- In some cases, there are specific legislative requirements, notably under the Habitats Directive, for the SoS to consider alternatives. These should be identified in the ES by the applicant.
- In some circumstances, the relevant energy NPSs may impose a policy requirement to consider alternatives – EN-1 does in Sections 5.3, 5.7 and 5.9 in relation to avoiding significant harm to biodiversity and geological conservation interests, flood risk and development within nationally designated landscapes, respectively.

6.2.26 Information relating to the main alternatives that the Applicants have considered in relation to the Proposed Development are set out at ES Volume I Chapter 6,

'Alternatives and Design Evolution'. The alternatives that have been considered include:

- alternative technologies;
- alternative sites; and
- alternative layouts within the Site.

6.2.27 Section 6.3 of Chapter 6 deals with the consideration of alternative technologies. It confirms that the need for a low carbon electricity generating station was identified as essential to the Proposed Development at an early stage, not only because of the recognised need to decarbonise the power sector in order to meet national carbon budgets and Net Zero by 2050, but also to deliver dispatchable low carbon generation to complement the increased penetration of renewable sources onto the UK supply network. Low carbon electricity generation also provides an anchor to enable investment in the proposed carbon transport and storage infrastructure to facilitate the capture of CO_2 from industrial sources. A high efficiency CCGT plant was therefore selected.

6.2.28 Section 6.3 goes onto confirm that while various low carbon solutions are being developed in the UK for electricity generating stations, the most mature low carbon technology for large scale electricity generation is post-combustion carbon capture. Therefore, this technology was selected to minimise the technology risks associated with the Proposed Development.

6.2.29 A final decision has not yet been made on the choice of EPC contractor or vendor for the CCGT plant and CCP and this is unlikely to be made until the end of the 'Front End Engineering Design' ('FEED') stage (FEED is not due to commence until late 2021). For this reason it has been necessary to incorporate a degree of flexibility within the Application and therefore the Applicants have adopted the principles of the 'Rochdale Envelope' and assessed through the EIA maximum 'worst case' dimensions and design parameters for the Proposed Development.

6.2.30 The consideration of alternative locations is set out in Section 6.4. The key criteria for the selection process included an east coast location (due to the proximity of potential storage sites in the North Sea); proximity to the coast to minimise the onshore section of the high pressure CO_2 export pipeline; avoidance of residential areas; proximity to industrial emitters that could connect into the CO_2 gathering network; proximity to necessary connections, including gas network, electricity transmission network and water supply; sufficient space, including for future expansion; the use of brownfield land where possible; access to an industrial deep water jetty to facilitate the delivery of abnormal loads and minimisation of environmental effects and risks.

6.2.31 Teesside performed well against these criteria and was selected as the preferred location. Within Teesside a number of sites were assessed and shortlisted before the former Redcar Steel Works Site (now Teesworks) was selected. Key factors in its selection included the proximity to the North Sea for CO_2 transport; relative

remoteness from residential properties; proximity to required connections; the availability of brownfield land and being accessible to port facilities for the import of construction materials and large items.

6.2.32 Sections 6.5 to 6.7 sets out the reasons for the selection of the PCC Site within the Teesworks area and how the various connection corridors for the Proposed Development were evaluated and selected. This includes an explanation of the design process, including the alternative design options considered and design changes. The main design changes that have been made are summarised at Table 6-2.

6.2.33 With regard to the specific legislative requirements to consider alternatives, notably under the Habitats Regulations, the Applicants have undertaken a HRA as the Site lies directly adjacent to (and involves land within) the Teesmouth and Cleveland Coast SPA/Ramsar Site and Site of Scientific Interest ('SSSI'). The HRA (which includes an Appropriate Assessment) concludes that there will be no adverse effects on the integrity of any European site either alone or in combination with other plans and projects. As such there is no requirement to consider alternatives to the Proposed Development under the Habitats Regulations as it will not adversely impact upon the SPA/Ramsar/SSSI.

6.2.34 EN-1 does include a policy requirement to consider alternatives (Sections 5.3, 5.7 and 5.9) in relation to avoiding significant harm to biodiversity and geological conservation interests, flood risk and development within nationally designated landscapes. Paragraph 5.3.7 of EN-1 states that as a general principle, development should aim to avoid significant harm to biodiversity and geological conversation interests, including through mitigation and consideration of reasonable alternatives; where significant harm cannot be avoided, then appropriate compensation measures should be sought.

6.2.35 The potential effects of the Proposed Development biodiversity and ecology are assessed in detail within Chapters 12 'Terrestrial Ecology and Nature Conservation', 13 'Aquatic Ecology', 14 'Marine Ecology and Nature Conservation' and 15 'Ornithology. The conclusions of these assessments are that taking account of mitigation there will be no significant adverse effects upon species or habitats. Potential effects on ecology during construction will be managed through the implementation of the measures that will be set out in the Landscape and Biodiversity Protection Plan and the Construction Environment Management Plan ('CEMP') secured by Requirements 4 and 16 of the draft DCO (Document Ref. 2.1). Furthermore, proposed measures to achieve biodiversity enhancements are set out within the Indicative Landscape and Biodiversity Strategy (Document Ref. 5.12). The details proposals for biodiversity enhancement relating to the Proposed Development will be set out in the Landscape and Biodiversity Management and Enhancement Plan (also secured by Requirement 4).

6.2.36 Chapter 10 'Geology and Contaminated Land' confirms that there are no designated geological interest features within the Site boundary or in its vicinity.

6.2.37 Paragraph 5.7.13 of EN-1 states that the consideration of alternative sites is relevant to the application of the 'Sequential Test' in relation to flood risk, with the preference in the first instance to locate development within Flood Zone 1, the zone of least probability of tidal or fluvial flooding.

6.2.38 Chapter 9 of ES Volume I 'Surface Water, Flood Risk and Water Resources, considers the effects of the Proposed Development in terms of flooding and the risk of flooding. A site-wide Flood Risk Assessment ('FRA') is provided at Appendix 9A of ES Volume III (Document Ref. 6.4).

6.2.39 The PCC Site and the connection corridors on the south bank of the River Tees are located within Flood Zone 1 (i.e. a low risk of flooding) however, there are some parts of the Site that fall within Flood Zone 2 (medium risk) and Flood Zone 3 (high risk). Only construction works on parts of the Gas Connection, Water Discharge Connection, CO_2 Gathering Network Corridor and CO_2 Export Pipeline will be carried out in or under land in Flood Zones 2 and 3. These works will be temporary in nature and will involve either the construction of underground tunnels/ pipelines or the installation of pipes on existing/extended pipe racks in existing service corridors. Where tunnels or borings are proposed, the launch and receiving areas are all outside Flood Zone 3, except for the receiving pit for the Horizontal Directional Drilling ('HDD') crossing of the River Tees required for Option 2 for the CO_2 Gathering Network at the mouth of the Dabholm Gut, which may be located in Flood Zone 3.

6.2.40 As the Proposed Development involves land within both Flood Zones 2 and 3, it is necessary to apply the 'Sequential Test' in order to demonstrate that the Applicants have sought to locate it within the areas with the lowest probability of flooding (e.g. Flood Zone 1) when compared to alternative sites. The Applicants' approach to applying the Sequential Test is set out at paragraphs 9.6.16 to 9.6.30 of Appendix 9A of the ES and demonstrates that where feasible, development has been located in Flood Zone 1, however, parts of the connection corridors are, as a necessity located within Flood Zones 2 and 3 because they are connecting to existing infrastructure and industrial sites. The assessment demonstrates that the level of flood risk associated with the Proposed Development is similar to that at potential alternative locations for the development in Teesside. Table 3 of the Planning Practice Guidance ('PPG') confirms that 'Essential Infrastructure' (which includes essential utility infrastructure, which has to be located in a flood risk area for operational reasons, including Above Ground Installations)) is compatible with the higher risk flood zones (in terms of its flood risk vulnerability) subject to the application of the 'Exception Test'. NPS EN-1 (paragraph 5.7.16) states that all three elements of the Exception Test need to be satisfied for consent to be granted. For the Exception Test to be passed:

- it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk;
- the project should be on developed or previously developed land or, if it is not on previously developed land, that there are no reasonably alternative sites on

developable previously developed land subject to any exceptions set out in the technology-specific NPSs; and

- a FRA must demonstrate that the project will be safe, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

6.2.41 How the Proposed Development satisfies the Exception Test is set out at paragraphs 9.6.31 to 9.6.39 of Appendix 9A of the ES. With regard to this:

- The Proposed Development will have very clear wider sustainability benefits to the community. It will contribute to the security of electricity supplies and by providing low carbon generation and the necessary infrastructure to decarbonise local industries it will help support the transition to Net Zero by 2050. Furthermore, the Proposed Development will have significant economic benefits in terms of safeguarding jobs associated with existing carbon intensive industries of Teesside while creating new jobs and supporting the development of green industries such as hydrogen production.
- The PCC Site comprises previously developed land and the other elements of the Proposed Development, notably the connection corridors where feasible, involve previously developed land and/or existing infrastructure corridors.
- The site-wide FRA undertaken demonstrates (see Section 9.9 of the FRA) that the Proposed Development will be safe from the risk of flooding (through the implementation of various measures, including a Flood Emergency Response Plan) and will not increase the risk of flooding off-site.

6.2.42 It is therefore considered that the Exception Test, to the extent relevant to the Proposed Development, is satisfied.

6.2.43 The assessment of flood risk impacts and effects during construction is also set out in Chapter 9 of the ES. These have been informed by the site-wide FRA. The main risk during construction is considered to be that to construction workers. Table 9-19 provides the summary of key flood risks to the Proposed Development. It confirms that the risk of flooding from tidal, fluvial and surface water are low or very low, from groundwater medium, drainage infrastructure low to medium and artificial sources low. Section 9.10 sets out how residual flood risks and off-site impacts will be mitigated during both construction and operation.

6.2.44 The Applicant's environmental consultants discussed the FRA with the Environment Agency ('EA') prior to the submission of the Application. Following a review of the FRA in early July 2021, the Case Officer at the EA (in an email dated 7 July) confirmed that the EA is satisfied that that the FRA aligns with its understanding of flood risk at the Site and within the surrounding area and that:

"The conclusions appear to reflect the appropriate vulnerability/flood zones classifications for the proposed development. We will review the CEMP once published to ensure that appropriate flood risk mitigation measures have been considered. Overall, we do not consider flood risk to be a significant issue for the proposed development."

6.2.45 Requirements 11 and 12 of the draft DCO will secure the details of surface water drainage and flood risk mitigation for the Proposed Development, including temporary measures for the construction phase as well as permanent measures, while further mitigation measures will be secured through the final Construction Environmental Management Plan ('CEMP') (Requirement 16 of the draft DCO).

6.2.46 Paragraph 5.9.10 of EN-1 indicates that the consideration of alternatives can also be relevant where development involves land that is subject to national landscape designations, such as National Parks or Areas of Outstanding Natural Beauty

6.2.47 ES Volume I Chapter 17 'Landscape and Visual Amenity' confirms that the Site is not subject to any national landscape designations, nether are there any within the immediate vicinity of the Site. As such, there is no requirement to consider alternatives from a landscape perspective.

6.2.48 The Applicant's consideration of alternatives in relation to the Proposed Development, as set out in the ES, is therefore considered to be both appropriate and proportionate.

Criteria for "good design" in energy infrastructure (NPS EN-1, 4.5; EN-2, 2.3.15-2.3.16; EN-4, 2.3 and EN-5, 2.5)

6.2.49 EN-1 (paragraph 4.5.1) recognises that the functionality of buildings and infrastructure, including fitness for purpose and sustainability, are as equally important as visual appearance and aesthetic considerations. It goes on to state that applying 'good design' to energy NSIPs should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates 'good aesthetic' as far as possible. It is however acknowledged that *"…the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of an area."*

6.2.50 Paragraph 4.5.2 of EN-1 notes that 'good design' is also a means by which many policy objectives in the NPS can be met, for example, the impact sections (of EN-1) show how good design, in terms of siting and use of appropriate technologies can help mitigate adverse impacts such as noise.

6.2.51 Paragraph 4.5.3 confirms that in assessing applications, the SoS will need to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be. In doing so, it goes on to state that the SoS should be satisfied that:

"...the applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible. Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and

vegetation. Furthermore, the design and sensitive use of materials in any associated development such as electricity substations will assist in ensuring that such development contributes to the quality of the area."

6.2.52 Paragraph 4.5.4 stresses the importance of applicants being able to demonstrate in their application documents how the design process was conducted and how the proposed design evolved. However, it also makes clear that in considering applications, the SoS should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements, which the design has to satisfy.

6.2.53 EN-2 (paragraph 2.3.16) states that in relation to fossil fuel generating stations, applicants should demonstrate good design particularly in respect of landscape and visual amenity and in the design of the Proposed Development to mitigate impacts such as noise and vibration, transport impacts and air emissions.

6.2.54 EN-4 (paragraph 2.3.1) states that in relation to gas infrastructure, applicants should demonstrate good design as per section 4.5 of EN-1.

6.2.55 EN-5 (paragraph 2.5.2) states that proposals for electricity network infrastructure should demonstrate good design in their approach to mitigating the potential adverse impacts that can be associated with overhead lines.

6.2.56 Chapter 6 of the ES Volume I 'Alternatives and Design Evolution' (Document Ref. 6.2) at Sections 6.4 to 6.7 considers the alternatives that have been examined for the Proposed Development, including alternative technologies, locations, sites and connection routing and corridors. Section 6.7 provides an explanation of the design process, including the alternative design options and design changes. The main design changes are summarised at Table 6-2. These in the main have related to the refinement of the Site boundary, notably the connection corridors but have also included changes to the PCC Site in terms of the number of CCGT trains and high-pressure compressors.

6.2.57 The Applicants have prepared a 'Design and Access Statement' ('DAS') (Document Ref. 5.4) that forms part of the DCO Application. The DAS explains where the Applicants are seeking flexibility in the design of the Proposed Development and sets out the design parameters that have been used for the purposes of the EIA to ensure that its likely significant effects have been robustly assessed. The DAS also sets out how the design of the Proposed Development has evolved during the pre-application stage, the level of design information that is available at the consenting stage and how detailed design will ultimately be controlled and secured. In addition, it sets out how good design principles have been included within the Proposed Development

6.2.58 The main focus of the DAS is upon the PCC Site that will accommodate the Low Carbon Electricity Generating Station, its CCP and the HP Compressor Station. This is because the PCC Site will be the location of the main buildings and structures and the other works that form part of the Proposed Development primarily involve the installation of pipelines and cables, which are for the most part below ground and/or within existing infrastructure corridors. Those works therefore comprise engineering

works, which are more appropriately covered in other Application documents, notably the ES (Document Refs. 6.1 to 6.4) and the Electricity Grid Connection Statement (Document Ref. 5.5) and the Gas Connection and Pipelines Statement (Document Ref. 5.6), rather than the DAS.

6.2.59 The PCC Site sits within an industrialised context, with the Redcar Blast Furnace and Coke Ovens still dominating the landscape. The surrounding area is very much dominated by industrial land uses, including port related uses, with the nearest residential area being Dormanstown, approximately 1.4 km to the south-east. There are undeveloped areas nearby that are used by the local community and are of environmental importance, notably South Gare and Coatham Dunes/Sands. A section of the England Coast Path runs across this area along the PCC Site's eastern and southern boundaries.

6.2.60 The various connection corridors for the Proposed Development for the most part pass through areas of former and existing industrial land, with the exception of the connections that cross the River Tees and the CO_2 Export Pipeline which crosses South Gare and Coatham Dunes/Sands.

6.2.61 The proposed use of the PCC Site is for power generation and the capture and compression of CO_2 prior to this being exported offshore. That use is consistent with the allocation of the land within the Local Plan and also the uses identified as appropriate to what is known as the Northern Industrial Zone ('NIZ') within the South Tees Area SPD and the Teesworks Design Guide. Furthermore, the PCC Site corresponds with the specific zone identified for NZT within the Teesworks Design Guide.

6.2.62 The most visually prominent components of the Proposed Development will be the Absorber Tower and Stack, Heat Recovery Steam Generator ('HRSG') and associated Stack and Gas Turbine Hall at the PCC Site. The main buildings and structures at the PCC Site will be grouped together where feasible from a technical and safety perspective to consolidate their built form. The buildings and structures will be set well within the Site to accommodate the requirements for stand-off distances, infrastructure connections, utilities and access roads. This is something that is recognised with the Teesworks Design Guide as often being necessary in relation to large scale industrial and infrastructure development.

6.2.63 The appearance of the buildings and structures at the PCC Site will be in keeping with the industrialised context within which they will sit, with the area already being characterised by large industrial structures, including on the former Redcar Steel Works complex and other industrial sites within the surrounding area. The appearance of the buildings and structures is representative of their function and purpose, a characteristic recognised as a primary driver behind the design code of typology of 'Large-scale Industrial Operations' (including major energy generation) within the Teesworks Design Guide. The appearance of the buildings/structures is also consistent with the fact that the PCC Site is not identified as a Gateway Plot or a primary route within the Teesworks Site.

6.2.64 The buildings and structures at the PCC Site will be simple and functional in form and detailing, predominantly comprising steel framed enclosures that will be clad in appropriate materials. While the buildings and structures are functional, reflective of their industrial setting and the fact they do not sit on a Gateway Plot or primary route within the Teesworks Site, the decision has been taken to enclose the main items of plant and equipment in line with Design Guide recommendations having regard to the fact they will be visible from South Gare and Coatham Dunes/Sands.

6.2.65 The various connections – the gas, water, electricity grid, CO_2 gathering and export will primarily comprise pipelines and cables which for the most part will be installed below ground or upon existing pipe-racking and existing and proposed structures within existing infrastructure corridors. The exception to this are buildings and structures of relatively limited scale within the Gas Above Ground Installations ('AGIs'), a new NZT electrical substation at Tod Point adjacent to the existing National Grid Electricity Transmission Plc ('NGET') Tod Point Substation (the 'New Tod Point Substation') and northern and southern extensions to the existing NGET Tod Point Substation (the 'Existing Tod Point Substation')-The infrastructure required for the connections will not therefore be highly visible, nor alter the use or character of the land to which they relate. The approach that has been taken to selecting the various connections corridors (in accordance EN-4, paragraphs 2.19.7 to 2.19.10 and EN-5, Section 2.2) has been to maintain separation from and limit effects upon sensitive receptors such as residential properties and areas of amenity of nature conservation value and minimise as far as possible the crossings of roads, railways and watercourses.

6.2.66 The landscape and visual effects of the Proposed Development are considered at Table 6.1 'Generic Impacts' later within this section. This includes a summary of the findings of ES Volume I Chapter 17 'Landscape and Visual Amenity'. Although Chapter 17 does identify that the Proposed Development will result in some limited landscape and visual effects it notes that the Applicants have sought to minimise landscape and visual effects through consolidating the built form at the PCC Site where possible, with the main buildings and structures set well back from the site boundaries and EN-2 (paragraph 2.65) does recognise that *"It is not possible to eliminate the visual impacts associated with a fossil fuel generating station."* Furthermore, appropriate materials and colours will be selected for the external finishes of the buildings/structures in order to minimise effects and the details of these will be secured by Requirement 3 'Detailed design' of the draft DCO (Document Ref. 2.1). It is also considered that the significant benefits of the Proposed Development outweigh any limited landscape and visual effects.

6.2.67 The approach taken to landscaping at the PCC Site has been influenced by functional and safety requirements. The areas around and between the main buildings and structures will comprise for the most part of hardstanding and crushed stone, with some grassed areas. These areas need to be kept free of planting for safety and security reasons. The internal access roads and other hardstanding areas (e.g. for parking) will be of concrete or tarmac. However, the perimeter areas of the PCC Site

will be landscaped and there will be opportunities for planting and biodiversity enhancement in line with the Indicative Landscape and Biodiversity Strategy (Document Ref. 5.12) that has been developed by the Applicants. Details of the landscaping will be secured by Requirement 4 'Landscape and biodiversity protection management and enhancement'.

6.2.68 The Proposed Development also incorporates appropriate access arrangements. The internal access roads within the PCC Site will be designed to provide safe access and movement for all vehicle types and users. There will be clear segregation of and demarcation of routes for pedestrians. Where possible, pedestrian routes, parking areas and buildings within the PCC Site will be designed to provide for inclusive access. This will need to take account of operational and safety considerations given the nature of the use and operations.

6.2.69 Further to the above, the Proposed Development incorporates a number of measures within its design to ensure that it will be resilient in terms of the effects of climate change as well as contributing to mitigating those effects. This includes appropriate flood risk mitigation and landscaping and biodiversity enhancement. Neither should it be overlooked that the Proposed Development will not only capture emissions from the Low Carbon Electricity Generating Station but also provide infrastructure to assist in decarbonising industry on Teesside. Paragraphs 6.2.88 to 6.2.107 later within this section provide a summary of the findings of Chapter 21 'Climate Change' of ES Volume I and confirm that that the Proposed Development will not result in significant climate changes effects and that the NZT project as a whole could result in a net reduction in CO_2 emissions from current levels, with a beneficial effect on annual UK carbon emissions.

6.2.70 The detailed design of the Proposed Development will be secured by a number of requirements within Schedule 2 of the draft DCO, notably Requirement 3 'Detailed Design'; 4 'Landscape and biodiversity protection management and enhancement'; 6 'External Lighting'; and 8 'Means of enclosure'.

6.2.71 It is therefore considered that the Proposed Development represents 'good design' for the purposes of energy infrastructure and policy set out EN-1, EN-2, EN-4 and EN-5, other planning policy documents and also local design guidelines.

<u>Consideration of combined heat and power ('CHP') (NPS EN-1, 4.6; and EN-2, 2.3.2-2.33)</u>

6.2.72 EN-1 (paragraph 4.6.1) confirms that CHP is the generation of useable heat and electricity in a single process. A CHP station may either supply steam direct to customers or capture waste heat for low-pressure steam, hot water or space heating purposes after it has been used to drive electricity generating turbines. The heat can also be used to drive absorption chillers, thereby providing cooling.

6.2.73 Paragraph 4.6.2 goes on to state that CHP is technically feasible for all types of thermal generating stations. To be economically viable (paragraph 4.6.5) as a CHP plant, a generating station needs to be located close to industrial or domestic

customers with heat demands. The distance will vary according to the size of the generating station and the nature of the heat demand. The provision of CHP is most likely to be cost-effective and practical where it is included as part of the initial design and is part of a mixed-use development.

6.2.74 Paragraph 4.6.6 of EN-1 states that *"…under Guidelines issued by DECC (then DTI) in 2006 [the Combined Heat and Power (CHP) Guidance], any application to develop a thermal generating station under Section 36 of the Electricity Act 1989 must either include CHP or contain evidence that the possibilities for CHP have been fully explored to inform the [Secretary of State]'s consideration of the application,"* and that the, *"...same principle applies to any thermal power station which is subject to an application for development consent under the Planning Act 2008."* It continues that the SoS should have regard to DECC's guidance or any successor to it when considering the CHP aspects of applications for thermal generating stations. Since the publication of the DECC Guidance, in 2013 the Environment Agency ('EA') has published its own 'CHP Ready Guidance for Combustion and Energy from Waste Plants'.

6.2.75 Where CHP is not feasible, paragraphs 4.6.8 and 4.6.9 emphasise the need for applicants to demonstrate how the design of the development provides for the future provision of CHP (i.e. that it is 'CHP Ready')

6.2.76 EN-2 (paragraphs 2.3.2 to 2.3.3) reiterates the requirement of EN-1 for applications for generating stations to either include CHP or present evidence in the application that the possibilities for CHP have been fully explored.

6.2.77 The Applicants have assessed the feasibility of CHP in accordance with EN-1, EN-2 and the EA's guidance. This assessment is reported within the 'Combined Heat and Power ('CHP') Assessment' (Document Ref. 5.8).

6.2.78 The CHP Assessment demonstrates that the Applicants have explored the potential for the Low Carbon Electricity Generating Station to operate in CHP mode (i.e. exporting heat to off-site users). In order to examine the CHP potential, the use of Best Available Techniques ('BAT') for the Proposed Development has been demonstrated by applying the three 'BAT Tests' outlined in the EA's guidance. Use of CHP is limited in the case of the Proposed Development due to its intended role as a dispatchable CCGT plant that operates intermittently. In addition, the electricity and steam demand required by the CCP is deliberately provided from the CCGT so as to maximise heat integration between the two components. Therefore, there is less residual heat available for export from the Proposed Development to third party users than would be the case from a CCGT operating without carbon capture.

6.2.79 Nevertheless, following an assessment of the feasibility for heat extraction, three potential heat loads capable of producing hot water for district heating were identified. From these loads, there is approximately up to 45MWth and 94MWth of heat available from the Low Carbon Electricity Generating Station running at minimum electrical power (part load) and maximum electrical power (full load) respectively.

6.2.80 The CHP Assessment has indicated that there are a number of potential heat users within a 15km radius of the PCC Site. These include three potential heat demand clusters at South Bank, Kirkleatham and Redcar. There are also a number of developments being advanced within the Teesworks area that could be future heat users.

6.2.81 Taking account of economic factors and commercial risks and based on the intended dispatchable role of the Low Carbon Electricity Generating Station, none of these three heat clusters have been considered viable for the beneficial use of available heat from the Proposed Development. However, it is considered that there is future potential to provide Teesworks with available waste heat as the peak heat demand lies within the CHP envelope of the Proposed Development and the Teesworks area is adjacent to the PCC Site, reducing the cost of the necessary heat distribution pipework.

6.2.82 As the Teesworks developments are not yet built (still being at planning stage), CHP is not proposed to be installed from the outset, however, the PCC Site will be designed so as to be 'CHP Ready' with sufficient space allocated for the future retrofit of a heat offtake within its footprint should that be required. Furthermore, Requirement 26 at Schedule 2 of the draft DCO (Document Ref. 2.1) will secured a periodic review of the feasibility of CHP infrastructure being implemented.

6.2.83 It has therefore been demonstrated that the Proposed Development will be CHP Ready.

Carbon Capture Readiness ('CCR') (NPS EN-1, 4.7 and EN-2, 2.3.4-2.3.5)

6.2.84 Paragraph 4.7.10 pf EN-1 states that to ensure that no foreseeable barriers exist to retrofitting carbon capture and storage ('CCS') equipment on combustion generating stations, all applications for new combustion plant which are of generating capacity at or over 300 MW should demonstrate that the plant is CCR before consent may be given. Furthermore, that in order to provide assurance that a generating station is CCR, applicants will need to demonstrate that their proposal complies with the following:

- that sufficient space is available on or near the site to accommodate carbon capture equipment in the future;
- the technical feasibility of retrofitting their chosen carbon capture technology;
- that a suitable area of deep geological storage offshore exists for the storage of captured CO_2 from the proposed combustion station;
- the technical feasibility of transporting the captured CO_2 to the proposed storage area; and
- the economic feasibility within the combustion station's lifetime of the full CCS chain, covering retrofitting, transport and storage.

6.2.85 EN-2, paragraph 2.3.5 states that the SoS should impose requirements on any consent requiring operators to retain control of sufficient additional space for carbon capture plant, retain their ability to build this plant on the space in the future and submit update reports periodically on retrofitting carbon capture plant.

6.2.86 The Proposed Development is a carbon capture enabled electricity generating station and is itself part of the development of a CCUS cluster to enable the capture and storage of captured CO_2 from other emitters (including industrial emitters) on Teesside, therefore CCS is essential to and fundamental to the Proposed Development. Nevertheless, for completeness, Application includes a 'Carbon Capture Readiness ('CCR') Assessment' (Document Ref. 5.7) to demonstrate that it is technically feasible to incorporate carbon capture technology within the Proposed Development and that it is 'Carbon Capture Ready' ('CCR') in accordance with 'The Carbon Capture Readiness (Electricity Generating Stations) Regulations 2013'. The CCR Assessment has been produced in accordance with the requirements of the Department of Energy and Climate Change guidance 'Carbon Capture Readiness (CCR) – A Guidance Note for Section 36 Electricity Act 1989 consent applications' (November 2009.

6.2.87 The CCR Assessment confirms the following:

- The PCC Site provides sufficient space for CCP taking account of a technical assessment of available technology.
- The proposed CO_2 storage site (the Endurance saline aquifer) has sufficient capacity to accept CO_2 from the Proposed Development over its design life. The CO_2 will be transported to the storage site via pipeline and a separate but related consent for the routing, construction and operation of the offshore pipeline is being progressed by Northern Endurance Partnership.
- The economic viability of power with CCUS has been demonstrated through the 'System Value to the UK Power Market of Carbon Capture and Storage' report published by NZT (June 2020). The analysis estimated that inclusion of power with CCUS in the UK market could reduce the total UK system cost of reaching net zero by 2050 by £19bn versus a system without power with CCUS. Specific project terms will be negotiated following a successful application in line with the BEIS cluster selection process and based on the Dispatchable Power Agreement as described by BEIS in its report 'An update on business models for Carbon Capture, usage and Storage' (December 2020).

6.2.88 The Proposed Development will be constructed with CCP from the outset and forms part of a full chain CCUS project. It is therefore CCR in accordance with the CCR regulations and guidance. In view of this, the need for periodic reviews of the Proposed Development's CCR and the feasibility of CCS/CCUS it not considered to be necessary.

Climate change adaptation (NPS EN-1, 4.8; EN-2, 2.3.13-2.3.14; EN-4, 2.2 and EN-5, 2.4)

6.2.89 EN-1 (paragraph 4.8.5) states that new energy infrastructure will typically be a long-term investment and will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change, such as potential for increased flooding, when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure. The ES should set out how the NSIP will take account of its impact on climate change. While not required by the EIA Directive, this information will be needed by the SoS.

6.2.90 EN-2 (paragraph 2.3.13) notes that as fossil fuel generating stations are likely to be proposed for coastal or estuarine sites and climate change is likely, for example, to increase risks from flooding or rising sea levels; applicants should in particular set out how the proposal would be resilient to coastal changes and increased risk from tidal and storm surge; the effects of higher temperatures, including higher temperatures of cooling water, and increased risk of drought leading to a lack of available cooling water. These matters should be assessed in the ES (EN-2, paragraph 2.3.14).

6.2.91 EN-4 (paragraph 2.2.2) states that gas pipelines and other infrastructure should be resilient to increased risk of flooding; effects of rising sea levels and increased risk of storm surge; higher temperatures; increased risk of earth movement or subsidence from increased risk of flooding and drought; and any other increased risks identified in the applicant's assessment.

6.2.92 EN-5 (paragraph 2.4.1) refers to the need to consider the effects of flooding, particularly upon substation infrastructure, winds and storms on overhead lines, higher temperatures leading to increased transmission losses and earth movement or subsidence caused by flooding or drought on underground cables.

6.2.93 The assessment of flood risk impacts and effects from the Proposed Development has already been considered at paragraphs 6.2.39 to 6.2.44, which confirm (taking account of Chapter 9 'Surface Water, Flood Risk and Water Resources' and the site-wide FRA), that the risks during construction and operation are low with appropriate mitigation.

6.2.94 Chapter 21 'Climate Change' of ES Volume I provides a broader assessment of the Proposed Development's impact on climate change, notably, greenhouse gas emissions. With regard to this, it should be noted that Proposed Development is part of a full chain CCUS project that will capture up to 95% of the emissions from the electricity generating station while also providing the infrastructure to facilitate industrial emitters on Teesside in capturing and storing their CO_2 emissions.

6.2.95 Chapter 21 includes the following:

- A 'Lifecycle Greenhouse Gas' ('GHG') impact assessment – an assessment of the potential effects on the climate from GHG emissions arising from the Proposed

Development, including how it would affect the ability of the Government to meet its carbon reduction targets.

- An 'In-combination Climate Change Impacts' ('ICCI') assessment – an assessment of the in-combination effects of a changing climate and the Proposed Development on receptors in the surrounding environment.
- A 'Climate Change Resilience' ('CCR') review – a review of the resilience of the Proposed Development to projections for climate change, including how it would be adapted to take account for the projected impacts of climate change.

6.2.96 The capture and storage of industrial emissions has not been factored into the above assessments and review as industrial emitters will be responsible for their own CCP and connections to the CO_2 Gathering Network.

6.2.97 The Lifecyle GHG impact assessment factors in construction, operational and decommissioning effects. It also factors in different scenarios for the operation of the Low Carbon Electricity Generating Station. The worst-case uncaptured CO_2 emissions from these scenarios has been used to inform the total GHG calculations. These emissions are detailed in in Chapter 21.

6.2.98 Paragraph 21.3.46 of Chapter 21 confirms that the GHG avoidance of the Proposed Development is based on the CCS/CCUS elements being operational. Using the worst-case emissions scenario, unabated CO_2 emissions from the Low Carbon Electricity Generating Station could amount to an average of more than 2M tCO_2 per year, or 50M tCO_2 over the 25-year design life of the Proposed Development. With carbon capture technology, up to 95% of these emissions will be captured, geo-sequestered and not released into the atmosphere.

6.2.99 Table 21-13 compares the carbon intensity of the Proposed Development (both with and without carbon capture) with other forms of generation. Unabated the Low Carbon Electricity Generating Station will be slightly lower than the average gas-fired power plant. Using CCP and 95% capture rates it will have a carbon intensity of 20.7 tCO_2 per GWh, significantly less that the grid average emission in 2020 of 198 tCO_2 per GWh.

6.2.100 Emissions associated with the Proposed Development have been examined for their significance against the UK Carbon Budgets (paragraph 21.3.67 at Chapter 21). These emissions are detailed in Table 21-14. Paragraph 21.3.66 confirms that Table 21-14 assumes four years of construction occurring across the 3rd and 4th UK carbon budgets, two years of operations occurring during the 4th carbon budget and five years during the 5th and 6th carbon budgets. The percentage contribution of emissions from the Proposed Development to the respective carbon budgets are less than 0.001%, 0.03%, 0.08% and 0.14% respectively.

6.2.101 The magnitude of impact of the Proposed Development (paragraph 21.3.1) is therefore considered 'low' against the current UK carbon budgets. The significance of effects is considered as 'minor adverse' (Table 21-7). As such, the operation of the Proposed Development is not expected to affect the UK in terms of meeting its

current Carbon Budgets. Furthermore, (paragraph 21.3.68) the GHG assessment concludes that once neighbouring industries are connected to the CO_2 gathering network and CO_2 can be captured from these sources, it is envisaged that the NZT project as a whole could result in a net reduction in CO_2 emissions from current levels, with the objective of achieving net zero status for the Low Carbon Electricity Generating Station and connected industrial emitters with a beneficial effect on annual UK carbon emissions.

6.2.102 The ICCI assessment considers the ways in which climate change (e.g. extreme weather events, sea level rises) will influence the significance of the impact of the Proposed Development on receptors in the surrounding environment. The assessment considers the existing and projected future climate conditions on the location. The types of impacts and effects that may occur during construction, operation and decommissioning, and the significance of these are described in Section 21.5 and Table 21-30 taking account of relevant mitigation.

6.2.103 Table 21-30 identifies two potentially significant ICCIs. These both relate to increasing winter rainfall combined with existing flood risk at the Site. Paragraph 21.4.49 states that the development of a Flood Emergency Response Plan, supported by the results and recommendations of the Flood Risk Assessment is considered sufficient to address the significant ICCIs.

6.2.104 Section 21.5 of Chapter 21 details the CCR Review that has been undertaken for the Proposed Development. Again, this considers the construction, operational and decommissioning effects of the Proposed Development. The assessment seeks to identify potential climate change impacts and the potential consequence and likelihood or occurrence, taking account of measures incorporated into the design of the Proposed Development. Table 21-33 sets out the scope of the assessment, which covers extreme weather events, precipitation, temperature, seal level rise, sea temperature and wind.

6.2.105 The CCR Review includes all infrastructure and assets associated with the Proposed Development and assesses the resilience against both gradual climate change and the risks associated with an increased frequency of severe weather events. The potential impacts and effect of projections for climate change to the Proposed Development are detailed in Table 21-37. Paragraph 21.5.42 summarises the findings of Table 21-37 and states that while a range of climate change hazards and their potential impact upon the Proposed Development have been identified, the embedded design measures are deemed sufficient to reduce the likelihood or consequence of an impact occurring as a result of projected climate hazards and therefore no significant resilience risks have been identified.

6.2.106 Section 21.6 reports on residual climate change effects. These are confined to GHG emissions – there will be some residual GHG emissions without offsetting of these by the capture of CO_2 emissions from industrial facilities on Teesside, however, this will result in a minor effect and is not significant.

6.2.107 Details of flood risk mitigation will be secured by Requirement 12 'Flood risk mitigation' of the draft DCO and Requirement 11 will secure details of surface and foul water drainage (taking account of flood risk mitigation).

6.2.108 It is therefore considered that the Proposed Development will not result in or be affected by significant climate changes effects. Indeed, once neighbouring industries are connected to the CO_2 Gathering Network and CO_2 can be captured from these sources, it is envisaged that the NZT project as a whole could result in a net reduction in CO_2 emissions from current levels, with a beneficial effect on annual UK carbon emissions. Furthermore, the Proposed Development has been designed to ensure that it is resilient to the future potential effects of climate change and no significant resilience risks have been identified. The Proposed Development therefore complies with the NPSs on climate change adaptation.

Grid connection (NPS EN-1, 4.9; and EN-2, 2.2.10 - 2.2.11)

6.2.109 EN-1 (paragraph 4.9.1) states that the connection of a generating station to the electricity network is an important consideration for applicants. It is for the applicant to ensure there will be the necessary infrastructure and capacity within the transmission and distribution network to accommodate the electricity generated. While it is not necessary for an applicant to have received or accepted a formal grid connection offer at the time of submitting an application for a DCO and this is at the applicant's risk, the SoS will want to be satisfied that there is no obvious reason why a grid connection would not be possible.

6.2.110 EN-2 (paragraphs 2.2.10 - 2.2.11) highlights that the technical feasibility of the export of electricity from a generating station is dependent on the capacity of the grid network together with the voltage and distance of the connection. Furthermore, applicants will usually have assured themselves that a viable connection existing before submitting an application for a DCO and where they have not done so they take a commercial risk. Even if the precise route of a connection has not been identified, in accordance with Section 4.9 of EN-1 any application must include information on how the generating station is to be connected and whether there are any particular environmental issues likely to arise from that connection.

6.2.111 The Application includes an 'Electricity Grid Connection Statement' (Document Ref. 5.5) in order to satisfy the requirements of APFP Regulation 5(2)(p) and 6(1)(a)(i) and Section 4.9 of EN-1. The Electricity Grid Connection Statement sets out the proposed grid connection option, including who will be responsible for designing and constructing the grid connection, including substation infrastructure, as well as demonstrating that there is no reason why the connection is not possible.

6.2.112 The Electrical Connection will be between the substation on the PCC Site and National Grid Electricity Transmission Plc's ('NGET') Tod Point Substation. NGET has confirmed that there is sufficient capacity at the existing Tod Point Substation to accommodate the export of electricity from the Low Carbon Electricity Generating Station and a connection offer has been agreed between NGET and the Applicants.

6.2.113 The Electrical Connection will comprise a 275kV single circuit cable and control system cables from a substation at the 'Low Carbon Electricity Generating Station Substation' on the PCC Site to the New NZT Tod Point Substation to the west of and adjacent to the Existing NGET Tod Point Substation and from the New Tod Point Substation to the Existing Tod Point Substation. The Existing Tod Point Substation will also be extended by NGET to the north and south to facilitate the Electrical Connection. The cables will be installed below ground along most of the connection corridor. No new overhead lines are proposed. The cables will be installed using an open cut method to a depth of at least 1.1m. A number of special crossings will be required on the route of the Electrical Connection across the Teesworks area. In addition to open cut these will require auger boring or above ground supports on existing or proposed structures (e.g. rail bridges).

6.2.114 The selected EPC contractor will be responsible for undertaking the detailed design work for and the installation of the underground cables and the construction of the New NZT Tod Point Substation. NGET will be responsible for the extension of the Existing Tod Point Substation, including adding two new circuit breaker bays to facilitate the connection. NGET has confirmed that no wider upgrades are required to support the Proposed Development.

6.2.115 The connection agreement with NGET provides the necessary rights for the Applicants to connect to the Existing Tod Point Substation. The Applicants have agreed rights of construction and access at the Existing Tod Point Substation and are in discussions with the relevant landowners to secure the necessary rights to install the cables between the PCC Site and Tod Point. An update on discussions will be provided early in the Examination stage.

6.2.116 It is considered that the Electricity Grid Connection Statement demonstrates that it is feasible to connect the Low Carbon Electricity Generating Station to the National Electricity Transmission System and that there is no impediment to the grid connection being provided.

Pollution control and other environmental regulatory regimes (NPS EN-1, 4.10)

6.2.117 Section 4.10 of EN-1 (paragraph 4.10.1) advises that issues relating to discharges or emissions which affect air quality, water quality, land quality or noise and vibration may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes.

6.2.118 Paragraph 4.10.3 states that in considering an application for development consent, the SoS should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions and discharges themselves. The SoS should work on the basis that the relevant pollution control regime and other environmental regulatory regimes will be properly applied and enforced by the relevant regulator.

6.2.119 Paragraph 4.10.5 notes that many developments covered by EN-1 will be subject to the Environmental Permitting ('EP') regime. Paragraph 4.10.6 advises applicants to

make early contact with relevant regulators, such as the EA, to discuss their requirements for EPs and other consents. This will ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the SoS. Where possible, applicants are encouraged to submit applications for EPs and other necessary consents at the same time as applying to the SoS for development consent.

6.2.120 The 'Other Consents and Licences' document (Document Ref. 5.10) lists the additional consents and licences that will be required for the Proposed Development. These are listed at Table 2.1 and included the Environmental Permit (in principle) for the operation of the Low Carbon Electricity Generating Station, which it is anticipated will be submitted to the Environment Agency ('EA') in late Q3 2021. Extensive discussions have been held between the Applicants and the EA regarding the approach to permitting of what is a 'First of its Kind' development, including the appraisal of Best Available Techniques. Table 2.1 provides information on the status of the applications for consents and licences and the discussions within the relevant stakeholders. The Applicants' will continue to update the document throughout the pre-examination and examination stages for the Application.

6.2.121 It is relevant to mention that the potential pollution effects and impacts of the Proposed Development in terms of air quality, water quality, land quality and noise and vibration have been fully assessed within the EIA undertaken. Furthermore, Schedule 2 of the draft DCO (Document Ref. 2.1) includes a number of requirements that will control the effects of the Proposed Development in terms of discharges and emissions during construction and operation in order to prevent pollution and safeguard amenity.

Safety (NPS EN-1, 4.11) and Control of Major Accident Hazards (EN-4, 2.5)

6.2.122 EN-1 paragraph 4.11.1 states that the Health and Safety Executive ('HSE') is responsible for enforcing a range of health and safety legislation, some of which is relevant to the construction, operation and decommissioning of energy infrastructure. Applicants should consult with the HSE on matters relating to safety.

6.2.123 Paragraph 4.11.2 confirms that some energy infrastructure will be subject to the 'Control of Major Accident Hazards' ('COMAH') Regulations 2015. These are aimed at preventing major accidents involving dangerous substances and limiting the consequences to people and the environment of any that do occur.

6.2.124 EN-4 (paragraph 2.5.1) highlights that gas supply infrastructure is subject to stringent safety standards under COMAH.

6.2.125 The Site falls within the Consultation Distances of a number of major hazard sites and major accident pipelines and also in the vicinity of a licensed explosive site. The Applicants have consulted the operators of the relevant sites and pipelines on the Proposed Development taking account of advice received from the Health and Safety

Executive ('HSE') in its response (dated 9 September 2020) to the Section 42 Stage 2 consultation.

6.2.126 Chapter 22 'Major Accidents and Natural Disasters' of ES Volume I provides an assessment of the Major Accidents and Natural Disasters ('MA&ND') that have the potential to arise during the construction, operation and decommissioning of the Proposed Development. This includes an assessment of the reasonably foreseeable worst-case environmental consequences/effects (this includes fire/explosions, toxic exposure, noxious substances, storms, climate change, terrorism/arson, earth quakes, lighting, aeroplane/drone impacts and the 'domini' effects from neighbouring facilities), the measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment, and details of the preparedness for and proposed response to MA&ND hazards and threats relevant to the Proposed Development.

6.2.127 The Proposed Development is anticipated to be subject to the COMAH Regulations 2015. While there is no specific guidance on the approach for undertaking a MA&ND assessment within an EIA, regard has been had to the COMAH Regulations and there is a considerable amount of information and guidance available to developers on the identification and control of major hazards associated with the operation of gas-fired generating stations, the storage and use of chemicals and major accident pipelines conveying hazardous fluids. The HSE has published a number of applicable guidance notes, including in relation to carbon capture technology and the transport of CO_2 by pipeline.

6.2.128 The main permanently manned buildings associated with the Proposed Development that can be classified as 'workplaces', comprise the Administration Block, Control Room and Warehouse/Workshop at the PCC Site. These buildings will each accommodate less than 100 occupants and have less than three occupied storeys. The buildings will be located in the south-west part of the PCC Site, which lies outside the Inner Consultation Zone of any of the Consultation Distances associated with the hazardous installations and pipelines within the vicinity of the Site. On that basis, it is understood that the HSE's land use planning advice on the Proposed Development would be 'Do Not Advise Against' as the working population is below the relevant threshold.

6.2.129 It is relevant to note that CO_2 is not flammable and will not support combustion and compared with many other materials conveyed via major pipelines in the UK, such as natural gas and ethylene, the risks to human health and the environment from events such as explosion are relatively low. However, as the concentration of CO_2 in ambient air or water rises, the hazardous effects on people and the environment increase. The key risks to people relate to the potential of CO_2 to act as a toxic material by inhalation or as an asphyxiant at certain concentrations where it displaces oxygen in air to dangerously low levels. High levels of dissolved CO_2 in water can also result in impacts from acidification and subsequent effects on shell-forming species.

6.2.130 Tables 22-2 and 22-3 list the potential MA&ND relevant to the construction and operation of the Proposed Development and the storage and handling of potentially hazardous substances present on the Site. The tables provide an assessment of risk, taking account of mitigation measures and confirms whether the risk has been mitigated to 'As Low As Reasonably Practicable' ('ALARP') and if the tolerability of risk is acceptable.

6.2.131 Section 22.7 assesses the potential for major accidents associated with CO_2 releases. Paragraph 22.7.8 notes that the Proposed Development has been deliberately sited so as to maximise the distance from sensitive receptors and other industrial operations.

6.2.132 Section 22.8 assesses the major accident hazard sources that could be a source of, or increase the risk of, a major accident and/or domino effect. Paragraph 22.8.1 states that no neighbouring installations have been identified that could be the source of, or increase the risk or consequences of, a major accident and/or domino effect, and while there are several nearby installations that could be affected by a major accident associated with the Proposed Development, it has been deliberately sited to minimise such an effect. Furthermore, where the CO_2 Export Pipeline or other connections run close to existing gas pipelines, additional measures such as thickened pipe walls will be used where appropriate to minimise the risk of any domino effect with existing infrastructure in the event of a failure.

6.2.133 The assessment conclusions are set out at paragraphs 22.9.1 to 22.9.5. The principal conclusions drawn are as follows:

- The potential MA&NDs identified that could be applicable to the Proposed Development include fires, explosions and the release of CO_2. These incidents have an extremely low probability of occurrence but could have significant impacts on people and the environment without mitigation.
- Teesside is a long established location for power generation and heavy industry. Consequently, the hazards associated with such uses are well understood by plant operators and controlled by the regulatory authorities (the HSE and EA) and the Applicants will draw on this and their own expertise of designing, building and operating potentially hazardous installations to reduce the risk of major accidents occurring to be ALARP.
- The engineering design of the Proposed Development will incorporate the appropriate standards, proven design methods and control measures necessary to reduce the risks of such accidents to an acceptable level (i.e. ALARP) – the standard expected by the regulatory authorities.
- The Proposed Development will require appropriate consents to be in place for its operation including a COMAH licence and Environmental Permit, and these regulatory controls will stipulate a number of requirements that must be demonstrated to prevent or minimise the effects of major accidents.

- With the implementation of regulatory requirements and the mitigation set out in Tables 22-2 and 22-3, the MA&ND risks are considered to have been mitigated to 'tolerable' or 'tolerable if ALARP' and therefore the effects are considered as 'not significant' for both construction and operation.

6.2.134 At this stage no secondary mitigation measures (i.e. additional to the embedded mitigation within the Proposed Development) has been identified as being required to further mitigate any significant effects for MA&ND. Furthermore, detailed emergency plans will be produced for the Proposed Development in accordance with the Environmental Permit and all applicable Regulations. No residual effects have been identified.

Hazardous Substances (NPS EN-1, 4.12 and EN-4, 2.4)

6.2.135 EN-1, paragraph 4.12.1, confirms that all establishments wishing to hold stocks of certain hazardous substances above a certain threshold need 'Hazardous Substances Consent' ('HSC'). Applicants should consult the HSE at the pre-application stage if a Proposed Development is likely to need such consent.

6.2.136 EN-4 (paragraph 2.4.1) states that in the case of gas supply infrastructure the Health and Safety Executive (HSE) will advise the SoS on risks.

6.2.137 There will be a number of hazardous and potentially harmful substances that will be present on the PCC Site and other parts of the Proposed Development. The Applicants are currently establishing the inventories of these substances to determine whether these are above the controlled quantities, which would necessitate the submission of a Hazardous Substances Consent ('HSC') application. Any application would be submitted to the relevant Hazardous Substances Authority, likely to be RCBC and possibly also STBC.

6.2.138 As confirmed above, a COMAH licence application will be submitted to the HSE prior to construction once the volumes of hazardous substances have been established.

6.2.139 The 'Other Consents and Licences' document (Document Ref. 5.10) identifies the additional consents and licences that will be required for the Proposed Development and includes the COMAH and HSC applications.

Health (NPS EN-1, 4.13)

6.2.140 Section 4.13 of EN-1 highlights that energy production has the potential to impact on the health and well-being of the population (paragraph 4.13.1) and that where a NSIP has the potential to result in effects on human beings, the ES should assess those effects for each element of the development, identifying any adverse health impacts and measures to avoid, reduce or compensate the impacts as appropriate (paragraph 4.13.2).

6.2.141 Chapter 23 'Population and Human Health' of ES Volume I considers the potential effects of the Proposed Development upon the health and wellbeing of the local community. The Chapter is a summary, highlighting key aspects relevant to population and human health from the technical assessments completed and

presented within Chapters 8 'Air Quality', 9 'Hydrology and Water Resources', 10 'Geology and Hydrogeology', 11 'Noise and Vibration', 16 'Traffic and Transport' and 20 'Socio-economics and Tourism'. The Chapter also considers the effects of Electric and Magnetic Fields ('EMFs').

6.2.142 An assessment of the Major Accidents and Natural Disasters that have the potential to arise during the construction and operation of the Proposed Development is provided at Chapter 22 'Major Accidents and Natural Disasters' of ES Volume I. Chapter 22 has already been referred to at paragraphs 6.2.120 to 6.2.132 above in relation to 'Safety and Control of Major Accident Hazards'.

6.2.143 The potential impacts and effects identified from the Proposed Development on health and wellbeing include:

- Emissions to air – may affect air quality with consequential health effects (see Chapter 8 'Air Quality', ES Volume I) which could lead to a further deterioration in the local health figures outlined in Tables 23-4 and 23-5. However, the embedded mitigation outlined within Chapter 8 means the construction effects of the Proposed Development are predicted to be not significant at all human health receptors. Operational effects caused by emissions from the Absorber, including N-amine emissions are not predicted to produce a significant adverse effect on human health based on the stack height selected and the emission levels to be achieved from the CCGT plant.
- Increase in traffic – could lead to severance of communities, reduction in pedestrian amenity, increase in fear and intimidation of pedestrians, and reduction in highway safety; potentially increasing the local road injuries and deaths figure outlined in Table 23-5. Significant effects are not predicted based on the volume of traffic required for the construction of the Proposed Development (see Chapter 16 'Traffic and Transport', ES Volume I) and through the use of appropriate travel plans for construction workers and HGVs. As stated in Chapter 16, the traffic and transport effects from construction, operation and decommissioning are predicted to be negligible adverse and there will be no impacts of any significance to any of the road sections assessed.
- Noise emissions – may result in adverse effects on nearby sensitive receptors (see Chapter 11 'Noise and Vibration', ES Volume I) without adequate mitigation such as use of enclosures, design of plant and temporary or local screening of Noise Sensitive Receptors. As stated in Chapter 11, the residual noise effects of the Proposed Development are predicted to be of up to minor adverse and not significant for the construction, operation and decommissioning phases.
- Land/groundwater contamination or mobilisation of existing land contaminants – may result in human contact and associated adverse health impacts, (see Chapter 10 'Geology, Hydrogeology and Contaminated Land', ES Volume I) potentially leading to a deterioration in the local health figures outlined in Tables 23-4 and 23-5 unless correctly identified and managed during the construction of the Proposed Development. Chapter 10 confirms that the potential geological,

hydrogeological and contamination related impacts associated with the Proposed Development are likely to be up to minor adverse during construction, and minor adverse for operation and decommissioning and not significant.

- Emissions to water – may result in adverse effects on local water quality with potential consequential adverse health effects (see Chapter 9 'Surface Water, Flood Risk and Water Resources', ES Volume I) potentially leading to a deterioration in the local health figures outlined in Tables 23-4 and 23-5 unless embedded design measures prevent contamination of water resources. Chapter 9 confirms that construction there are predicted minor adverse effects on water quality in the Tees Bay which are not significant.
- Socio-economics and tourism – the construction and operation of the Proposed Development may result in effects on the economy and tourism (see Chapter 20 'Socio-Economics and Tourism, ES Volume I) potentially leading to changes in the socio-economic indices and mental health figures for the local area outlined in Table 23-6. During construction, there is predicted to be a major (significant) beneficial effect from employment and there are no adverse effects predicted that are classified as greater than minor adverse. During operation, the largest beneficial effect predicted is a moderate (significant) beneficial effect from employment and there are no adverse effects predicted that are classified as greater than negligible adverse.

6.2.144 Chapter 23 does not identify the need for any additional mitigation over and above that already identified Chapters 8, 9, 10, 11, 16 and 20.

6.2.145 Significant residual effects are predicted in relation to socio-economics and tourism, with a major (beneficial) effect from the employment generated during the four year construction programme and a moderate (beneficial) effect in terms of the creation of jobs during operation.

6.2.146 Chapter 23 assesses the potential effects of EMFs on human health and wellbeing during operation as neutral on the basis that the Electrical Connection is separated from residential areas by a distance of over 500m and will be buried.

6.2.147 The Applicants submitted a draft of Chapter 23 to Public Health England ('PHE') on 1 April 2021 for review. A response was received from PHE on 29 April 2021. The response mentioned that emissions to air from the operation of the Low Carbon Electricity Generating Station, particularly nitrogen oxides, had previously been identified as a potential concern (within the PEI Report) but had not been detailed in the 'Likely Impacts and Effects' section. The response also noted that the assessment of public health impacts from the electrical connection within the draft Chapter as neutral due to the separation from residential properties and the method of installation (below ground).

6.2.148 In response to the comments received from PHE, the text of Chapter 23 was updated to include specific text air quality impacts in the 'Likely Impacts and Effects' section (see above) rather than just a cross-reference to Chapter 8.

Common law nuisance and statutory nuisance (NPS EN-1, 4.14)

6.2.149 Paragraph 4.14.2 of EN-1 states that it is very important that, at the application stage of an energy NSIP, possible sources of nuisance under Section 79(1) of the Environmental Protection Act (EPA) 1990, and how they may be mitigated or limited are considered by the SoS so that appropriate requirements can be included in any subsequent order granting development consent.

6.2.150 The Applicant has prepared a Statutory Nuisance Statement (Document Ref. 5.9) that identifies the matters set out at Section 79(1) of the EPA in respect of statutory nuisance and considers if the Proposed Development could result in a nuisance and the measures, where relevant, to prevent and mitigate such nuisance occurring. Section 4 provides an assessment of the potential for nuisance taking account of the assessments undertaken for the EIA. The matters considered include the condition/state of premises; smoke; fumes or gases; dust, steam, smell or other effluvia; accumulations or deposits; keeping of animals; insects; artificial light; noise; and any other matter declared by enactment to be statutory nuisance. A number of matters are not relevant to the Proposed Development and are more relevance to other form of infrastructure (e.g. insects in respect of waste facilities).

6.2.151 Taking account of mitigation no statutory nuisance effects are considered likely to occur as a result of the Proposed Development. Mitigation is both embedded within the design of the Proposed Development and mitigation and controls will be secured during both construction and operation by a number of requirements (Schedule 2 of the draft DCO – Document Ref. 2.1). Furthermore, the operation of the Proposed Development would be regulated by the EA through environmental permitting would undergo regular monitoring and reporting.

Security considerations (NPS EN-1, 4.15)

6.2.152 Paragraph 4.15.1 states that national security considerations apply across all national infrastructure sectors. Paragraph 4.15.2 goes on to state that Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure developments at an early stage.

6.2.153 Where applications for development consent for infrastructure relate to potentially critical infrastructure, there may be national security considerations, which will be identified to the relevant government department (BEIS) by the Centre for Protection of National Infrastructure.

6.2.154 The PCC Site will be a secure site and the Applicants will consult with the appropriate bodies prior to construction in respect of security considerations and measures. Requirement 9 of the draft DCO (Document Ref. 2.1) secures the submission of a written scheme detailing security measures to minimise the risk of crime to the relevant planning authority for approval.

6.2.155 The Proposed Development therefore accords with the key assessment principles of the energy NPSs.

6.3 Generic Impacts

6.3.1 The 'generic impacts' set out in Part 4 of EN-1 are considered below in **Table 6.1**. Where the same impacts appear in the 'technology-specific information' parts of EN-2, EN-4 and EN-5 they are also dealt with below and the relevant part of the NPS is referenced.

Table 6.1 – Generic Impacts

Generic Impact	Summary	Assessment
Air quality and emissions (EN-1, 5.2 and EN-2, 2.5)	EN-1 acknowledges that air quality and emissions are likely to be a key area of concern when assess the development of generating stations. Paragraph 5.2.4 of the NPS EN-2 states: *"Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements."* Paragraphs 5.2.6 and 5.2.7 of EN-1 set out the requirements for applicants to assess issues relating to air quality and emissions as part of an ES. EN-1 states that the ES should describe: any significant air emissions, their mitigation and any residual effects distinguishing between the Proposed	Chapter 6 'Air Quality' of ES Volume I addresses the potential air quality effects of the Proposed Development during construction, operation and decommissioning. The Chapter considers the potential effect on identified human health and ecological receptions in terms of dust generation during construction; emissions from mobile plant during construction; emission from road traffic during construction and operation; and process emissions from the operational Proposed Development. No Air Quality Management Areas ('AQMA') have been declared for the Site or the surrounding areas. The nearest AQMA is outside the Study Area (paragraphs 8.3.2 to 8.3.6 of Chapter 8), approximately 19km south-east of the Site, in Staithes, and is designated for the exceedance of the 24-hour PM_{10} limit value. Based on Defra forecast models and local authority monitoring data, no exceedances of the EU standards have been identified as a result of emissions from the Low Carbon Electricity Generating Station. The impact of emissions from the Proposed Development on sensitive ecological receptors are quantified within the assessment in two ways – as direct impacts arising due to increases in atmospheric pollutant concentrations, assessed against defined 'critical levels'; and as indirect impacts arising through deposition of acids and nutrient nitrogen to the ground surface, assessed against defined 'critical loads'.

Generic Impact	Summary	Assessment
	Development stages and taking account of any significant emissions from any road traffic generated by the Proposed Development; the predicted absolute emission levels of the proposed Development, after mitigation methods have been applied; existing air quality levels and the relative change in air quality from existing levels; and and potential eutrophication impacts. Paragraph 5.2.9 states that air quality considerations will be given substantial weight where a Proposed Development would lead to deterioration in air quality in an area, or leads to a new area where air quality breaches any national air quality limits. Air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of national air quality limits.	Table 8-6 lists the identified human and ecological receptors that could potentially be impacted by the Proposed Development in air quality terms. During construction emissions will be controlled by a number of measures implemented through the CEMP (secured by Requirement 16). These are set out at paragraphs 8.5.2 and 8.5.3 of Chapter 8. For operation, the Proposed Development will be designed such that that process emissions to air comply with the ELV requirements specified in the IED, or, if tighter, the LCP BRef. This will be regulated by the EA through the Environmental Permit required for the operation of the electricity generating station. As appropriate, additional ELVs will be defined within the Environmental Permit for any other pollutant species emitted from the Proposed Development that isn't covered by the IED or LCP BRef. Section 8.6 sets out the likely air quality impacts and effects for the Proposed Development. In terms of construction as follows: • Dust – unmitigated dust impacts are considered to be 'low to medium risk' for human health receptors, and 'medium to high risk' for ecological receptors. Therefore, mitigation measures appropriate to the scale of perceived risk would be applied through the CEMP. • Traffic – the air quality effects of construction traffic on human and ecological receptors are assessed as negligible and not significant. • Site plant – due to the phased nature of the construction works and the controls that will be applied through the CEMP air quality effects from site plant are also assessed as negligible and not significant.

Generic Impact	Summary	Assessment
	Paragraph 5.2.10 requires decisions to take account of any relevant statutory air quality limits. Where the limits would be breached, developers should work with the relevant authorities to secure appropriate mitigation measures to allow the proposal to proceed. Consideration should be given to whether mitigation measures are needed for both operational and construction emissions. A construction management plan may help codify mitigation. EN-2 (paragraph 2.5.5) confirms that the applicant should carry out an assessment as required by EN-1, consulting the Environment Agency ('EA') and other statutory consultees. Paragraph 2.5.6 goes on to state that in considering whether to grant consent, the SoS should take account of likely environmental impacts resulting from air emissions and that in the case of	In terms of operation, the dispersion modelling carried out has been based on conservative assumptions. The results of the operation impact assessment for human health are set out at Table 8-10 with those for ecological receptors at Table 8-11. The impacts of all pollutant species released from the operational Proposed Development are predicted to result in negligible adverse effects at all receptors within the Study Area. The impact of NO_2, CO, NH_3 and amines can therefore be considered to be not significant at all human health receptors. In terms of ecological receptors, the most impacted ecological receptor as a result of emissions from the Proposed Development is the Teesmouth and Cleveland Coast SPA/Ramsar/SSSI, which is located adjacent to the PCC Site. However, the annual average impact of NO_x is under the threshold to be determined not significant (70%). The annual average impacts of NH_3 is also below the 70% threshold and therefore can be considered not significant. The daily NO_x concentration cannot be considered insignificant, given that the PC is greater than the 10% screening criteria, however the PEC of 59.7% indicates that, in addition to background NO_x levels, the PC is unlikely to result in an exceedance of the daily critical level and therefore it is considered that the predicted daily NO_x impacts are not significant. N-amine levels – formed either within the absorber before being emitted to atmosphere or formed within the atmosphere from the degradation of amines

Generic Impact	Summary	Assessment
	SOX, NOX or particulates it follows the advice in EN-1 on interaction with the EA's regulatory processes.	that are emitted – have been assessed using detailed modelling and chemistry algorithms and considering a range of potential emission and formation scenarios. The assessment concludes that no significant air quality effects are predicted as a result of the emissions from the Proposed Development. No additional mitigation has been identified as necessary for the construction, operational or decommissioning phases of the Proposed Development beyond the embedded mitigation measures proposed.
Biodiversity and geological conservation (EN-1, 5.3; EN-4 2.21; and EN-5, 2.7)	Paragraph 5.3.18 of EN-1 states that during construction appropriate mitigation measures should be included to ensure that activities will be confined to the minimum areas required for the works and to ensure that the risk of disturbance or damage to species is minimised. Paragraph 5.3.18 of EN-1 also states that, during operation, appropriate mitigation measures should be included to ensure that the risk of disturbance or damage to species is minimised. Development should aim to avoid significant harm to biodiversity and geological conservation interests	The Applicants have undertaken a HRA as the Site lies directly adjacent to (and involves land within) the Teesmouth and Cleveland Coast SPA/Ramsar Site. The HRA (which includes an Appropriate Assessment) concludes that there will be no adverse effects on the integrity of any European site either alone or in combination with other plans and projects. As such there is no requirement to consider alternatives to the Proposed Development as it will not adversely impact upon the SPA/Ramsar. The potential effects of the Proposed Development on biodiversity and ecology are assessed in detail within Chapters 12 'Terrestrial Ecology and Nature Conservation', 13 'Aquatic Ecology', 14 'Marine Ecology and Nature Conservation' and 15 'Ornithology' of ES Volume I. The surveys that have informed the assessments are contained within ES Volume III. The conclusions of the assessments covered in these chapters are as follows: • Terrestrial ecology – no likely significant effects with implementation of appropriate mitigation and monitoring.

Generic Impact	Summary	Assessment
	through mitigation and consideration of reasonable alternatives. EN-4 (Section 2.21) considers the effects of gas pipelines on biodiversity. It notes that many effects will be temporary in nature and that applications should include proposals for the reinstatement of the pipeline route to its original state as close as possible. EN-5 (Section 2.7) considers the effects that electricity network infrastructure can have on biodiversity, especially birds. Paragraph 2.7.2 requires the applicant to consider any such possible impacts, particularly on feeding and hunting grounds, migration corridors and breeding grounds.	• Aquatic ecology – no likely significant effects on species or habitats taking account of mitigation. • Marine ecology – no significant adverse effects taking account of mitigation. • Ornithology – no significant effects predicted to occur. Potential effects on ecology during construction will be managed through the implementation of the measures that will be set out in the Landscape and Biodiversity Protection Plan and the CEMP that will be secured by Requirements 4 and 16 of the draft DCO (Document Ref. 2.1). An Ecological Clerk of Works would be present during construction as appropriate to supervise and instruct the implementation of the mitigation measures in the CEMP. Furthermore, options to achieve benefits for biodiversity as a direct consequence of the Proposed Development are set out within the Indicative Landscape and Biodiversity Strategy (Document Ref. 5.12). The detailed proposals for biodiversity enhancement relating to the Proposed Development will be set out in the Landscape and Biodiversity Management and Enhancement Plan (also secured by Requirement 4). Chapter 10 'Geology and Contaminated Land' confirms that there are no geological interest features within the Site boundary or in its vicinity (e.g. Geological SSSIs). Furthermore, there are no recorded Regionally Important Geological Sites or Locally Important Geological Sites within the Site boundary. Effects upon geology (Table 10-16) . The effects on geology taking account of mitigation will be limited and not significant.

Generic Impact	Summary	Assessment
Civil and military aviation and defence interests (EN-1, 5.4)	EN-1, Section 5.4 notes that civil and military aerodromes and aviation technical sites, as well as other types of defence interests can be affected by new energy developments.	The Applicants consulted the Civil Aviation Authority ('CAA'), Defence Infrastructure Organisation ('DIO') and NATS on the proposed Development. A response was received from the DIO dated 14.09.20 confirming that the Site is outside any Ministry of Defence safeguarding areas and that the DIO had no safeguarding objections. A response was received from NATS dated 17.12.20 confirming that it has no safeguarding objections. The Site lies within the 30km wind farm safeguarding area for Durham Tees Valley Airport (shown on the Policies Map of the RCBC Local Plan), however, this is not considered relevant to the Proposed Development. Requirement 27 'Aviation warning lighting' of the draft DCO requires details of aviation warning lighting to be submitted to the relevant local planning authority prior to the commencement of development and for the authority to consult the CAA on those details. The aviation warning lighting must be installed and operated in accordance with the approved details. Requirement 28 'Air safety' requires relevant details to be sent to the Defence Geographic Centre of the MoD prior to the commencement of development so that the Site can be charted for aviation purposes.
Dust, odour, artificial light, smoke and	NPS EN-1 acknowledges that the construction/demolition, operation and decommissioning of energy	Chapter 8 'Air Quality' includes an assessment of dust impacts from construction. It confirms that unmitigated dust impacts are considered to be 'low to medium risk' for human health receptors, and 'medium to high risk' for

Generic Impact	Summary	Assessment
steam (EN-1, 5.6 and EN-2, 2.8)	infrastructure has the potential to affect air quality through the release of odour, dust, steam, smoke and artificial light. Paragraph 5.6.5 of EN-1 provides advice regarding the assessment of these impacts. It is advised that the assessment should describe: • the type, quantity and timing of emissions; • aspects of the development which may give rise to emissions; • premises or locations that may be affected by the emissions; • effects of the emissions on identified premises or locations; and • measures to be employed in preventing or mitigating the emissions. Paragraph 5.6.7 of EN-1 states that, in decision making, the SoS should be	ecological receptors. Appropriate mitigation measures will be applied through the CEMP (Requirement 16). No other dust impacts are predicted. Odour, artificial light, smoke and steam are dealt with in the Statutory Nuisance Statement (Document Ref. 5.9), which identifies the matters set out at Section 79(1) of the EPA in respect of statutory nuisance and considers if the Proposed Development could result in a nuisance and the measures, where relevant, to prevent and mitigate such nuisance occurring. Section 4 of the Statutory Nuisance Statement provides an assessment of the potential for nuisance taking account of the assessments undertaken for the EIA. The matters considered include the condition/state of premises; smoke; fumes or gases; dust, steam, smell or other effluvia; accumulations or deposits; keeping of animals; insects; artificial light; noise; and any other matter declared by enactment to be statutory nuisance. A number of matters are not relevant to the Proposed Development and are more relevance to other form of infrastructure (e.g. insects in respect of waste facilities). Taking account of mitigation no statutory nuisance effects are considered likely to occur as a result of the Proposed Development. Mitigation is both embedded within the design of the Proposed Development and mitigation and controls will be secured during both construction and operation by a number of requirements (Schedule 2 of the draft DCO – Document Ref. 2.1). These include Requirement 6 'External lighting'; 16 'Construction environmental management plan'; 20 'Construction hours'; 21 'Control of noise and vibration – construction'; 22 'Control of noise- operation'; 24 'Waste management on

Generic Impact	Summary	Assessment
	satisfied that an assessment of the potential effects in respect of artificial light, dust, odour, smoke and steam has been carried out; and be satisfied that all reasonable steps have been taken to minimise any detrimental impacts.	site – construction wastes'; and 25 'Restoration of land used temporarily for construction'. Furthermore, the operation of the Proposed Development would be regulated by the EA through environmental permitting would undergo regular monitoring and reporting.
Flood risk (EN-1, 5.7; EN-4, 2.2.2-2.2.3; and EN-5, 2.4.1)	Paragraph 5.7.4 of EN-1 requires that applications for energy developments of 1 hectare or greater in Flood Zone 1 in England and all proposals for energy developments located in Flood Zones 2 and 3 in England should be accompanied by a Flood Risk Assessment ('FRA'). Similar considerations apply to gas supply pipelines (EN-4, paragraph 2.2.2) and in relation to substations that are vital for the electricity transmission and distribution network (EN-5, paragraph 2.4.1). Applicants should set out how their developments will be resilient to flooding and not result in an increased risk of flooding.	Chapter 9 of ES Volume I 'Surface Water, Flood Risk and Water Resources, considers the effects of the Proposed Development in terms of flooding and the risk of flooding. A site-wide Flood Risk Assessment ('FRA') is provided at Appendix 9A of ES Volume III (Document Ref. 6.4). The PCC Site and the connection corridors on the south bank of the River Tees are located within Flood Zone 1 (i.e. a low risk of flooding) however, there are some parts of the Site that fall within Flood Zone 2 (medium risk) and Flood Zone 3a (high risk). Only construction works on parts of the Gas Connection, Water Discharge Connection, CO_2 Gathering Network Corridor and CO_2 Export Pipeline will be carried out in or under land in Flood Zones 2 and 3a. These works will be temporary in nature and will be involve either the construction of underground tunnels/ pipelines or the installation of pipes on existing/extended pipe racks in existing service corridors. Where tunnels or borings are proposed, the launch and receiving areas are all outside Flood Zone 3, except for the receiving pit for the Horizontal Directional Drilling ('HDD') crossing of the River Tees required for one option for the routeing of the CO_2 Gathering Network at the mouth of the Dabholm Gut, which may be located in Flood Zones 2 or 3a.

Generic Impact	Summary	Assessment
		As the Proposed Development involves land within both Flood Zones 2 and 3a, it is necessary to apply the 'Sequential Test' in order to demonstrate that the Applicants have sought to locate it within the areas with the lowest probability of flooding (e.g. Flood Zone 1). The Applicants' approach to applying the Sequential Test is set out at paragraphs 9.6.16 to 9.6.30 of Appendix 9A of the ES and demonstrates that the where feasible development has been located in Flood Zone 1, however, parts of the connection corridors are, as a necessity located within Flood Zones 2 and 3. Table 3 of the Planning Practice Guidance ('PPG') confirms that 'Essential Infrastructure' (which includes essential utility infrastructure, which has to be located in a flood risk area for operational reasons, including electricity generating stations and grid and primary substations) is compatible with the higher risk flood zones (in terms of its flood risk vulnerability) subject to the application of the 'Exception Test'. NPS EN-1 (paragraph 5.7.16) states that all three elements of the Exception Test need to be satisfied for consent to be grated. For the Exception Test to be passed: • it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk; • the project should be on developable, previously developed land or, if it is not on previously developed land, that there are no reasonably alternative sites on developable previously developed land subject to any exceptions set out in the technology-specific NPSs; and • a FRA must demonstrate that the project will be safe, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

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		How the Proposed Development satisfies the Exception Test is set out at paragraphs 9.6.31 to 9.6.39 of Appendix 9A of the ES. With regard to this: • The Proposed Development will have very clear wider sustainability benefits to the community. It will contribute to the security of electricity supplies and by providing low carbon generation and the necessary infrastructure to decarbonise local industries it will help support the transition to Net Zero by 2050. Furthermore, the Proposed Development will have significant economic benefits in terms of safeguarding jobs associated with existing carbon intensive industries of Teesside while creating new jobs and supporting the development of green industries such as hydrogen production. • The PCC Site comprises previously developed land and the other elements of the Proposed Development, notably the connection corridors where feasible, involve previously developed land and/or existing infrastructure corridors. • The site-wide FRA undertaken demonstrates (see Section 9.9 of the FRA) that the Proposed Development will be safe from the risk of flooding (through the implementation of various measures, including a Flood Emergency Response Plan) and will not increase the risk of flooding off-site. It is therefore considered that the Exception Test is satisfied.

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		The assessment of flood risk impacts and effects during construction is also set out in Appendix 9A to the ES. These have been informed by the site-wide FRA. The main risk during construction is considered to be that to construction workers. Table 9-19 in Chapter 9 of the ES provides the summary of key flood risks to the Proposed Development. It confirms that the risk of flooding from tidal, fluvial and surface water is low or very low, from groundwater medium, drainage infrastructure low to medium and artificial sources low. Section 9.10 in Chapter 9 of the ES sets out how residual flood risks and off-site impacts will be mitigated during both construction and operation. Requirements 11 and 12 of the draft DCO will secure the details of surface water drainage and flood risk mitigation for the Proposed Development, including temporary measures for the construction phase as well as permanent measures, while further mitigation measures will be secured through the final Construction Environmental Management Plan ('CEMP') (Requirement 16 of the draft DCO).
Historic environment (EN-1, 5.8)	Section 5.8 of EN-1 acknowledges that the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment. Paragraph 5.8.8 requires applicants to provide a description of the significance of the heritage assets affected by the	The potential impact of the Proposed Development upon the historic environment is considered at Chapter 18 'Archaeology and Cultural Heritage' and 19 'Marine Heritage' of ES Volume I. Chapter 18 deals with cultural heritage and archaeology in respect of the onshore elements of the Proposed Development. This includes archaeology, built heritage and historic landscapes and assesses the potential effects of the Proposed Development during construction, operation and decommissioning.

Generic Impact	Summary	Assessment
	proposed development and the contribution of their setting to that significance. Where a development site affects, or possibly includes heritage assets with an archaeological interest, the applicant should carry out an appropriate desk-based assessment. The extent of the impact of the proposed development on the significance of any heritage asset affected should be able to be adequately understood from the application documents. Paragraph 5.8.11 states that the SoS should assess the significance of any heritage asset that may be affected by the proposed development, taking account of: • evidence provided with the application;	There are limited heritage assets within the boundary of the PCC Site, although the adjacent Redcar Blast Furnace, which lies adjacent to the PCC Site, is identified as a heritage asset of at least medium value due to its historical, architectural and industrial interest. The construction effect on the setting of this asset is assessed to be neutral. Operational and decommissioning effects of the Proposed Development are also judged to be neutral. This is with the exception of the ancillary structures associated with the Blast Furnace that will be removed. However, these are considered to be of low value and mitigation is proposed in the form of a programme of research and building recording in advance of demolition. In terms of other heritage assets and archaeology, effects are assessed to be neutral. This is with the exception of a WWI rifle range within the water infrastructure (outfall) and CO_2 export pipeline corridors that is considered to be of medium value. For this asset mitigation by design is recommended by employing trenchless techniques to install the pipelines. It is proposed that the scope of mitigation is discussed with and approved by the Archaeological advisors to RCBC. The methodologies will be set out in a Written Scheme of Investigation (WSI), which will be submitted to RCBC for approval. The WSI will be secured by Requirement 14 'Archaeology' of the draft DCO (Document Ref. 2.1). The potential impact of the Proposed Development upon marine heritage is considered at Chapter 19 'Marine Heritage' of ES Volume I. This relates works

Generic Impact	Summary	Assessment
	• any designation records; • the Historic Environment Record; • the heritage assets themselves; • the outcome of consultations with interested parties; and • where appropriate, expert advice.	associated within the potential replacement of the existing water abstraction infrastructure in the Tees Estuary and the CO_2 Export Pipeline. No designated marine assets are identified within the Site, although there are a large number of undesignated assets, including wrecks. Based on the worst-case scenario of the existing water infrastructure (outfall) being replaced the effect on marine heritage during construction is assessed as negligible and therefore not of significance, while there will be no physical impact on any assets during operation or decommissioning.
Landscape and Visual (EN-1, 5.9, EN-2, 2.6; EN-4, 2.21; and EN-5, 2.8)	Section 5.9 of EN-1 states that adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, materials and design, and landscaping schemes. Paragraph 5.9.15 states that the SoS should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits of the proposed development. Paragraph 5.9.17 states that the SoS should consider the design of the development, taking account of	ES Volume I Chapter 17 'Landscape and Visual Amenity' confirms that the Site is not subject to any national landscape designations, nether are there any within the immediate vicinity of the Site. As such, there is no requirement to consider alternatives from a landscape perspective. The landscape and visual assessment is based on a study area for the PCC Site of 10km (based on the visibility of the largest structure – the Absorber stack) and for the connection corridors 2km and the basis that significant effects are unlikely beyond these distances. The assessment has determined that the Proposed Development is likely to result in significant short-term adverse landscape effects during construction within the Redcar Flats LCTr due to the close proximity of the Proposed Development and the extent of widespread views available. Impacts within

Generic Impact	Summary	Assessment
	environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation. Paragraph 5.9.18 recognises that all proposed energy infrastructure is likely to have visual effects for receptors around proposed sites; however, in determining proposals, a judgement is to be made as to whether the visual effects on sensitive receptors outweigh the benefits of the development. Section 2.6 of EN-2 sets out the landscape and visual considerations in relation to fossil fuel generating stations, recognising that many of the main structures (e.g. boiler and turbine halls and emissions stacks) are large and will have an impact upon the surrounding landscape and visual amenity. Paragraph 2.6.3 states that applicants should include a Landscape and Visual Impact Assessment ('LVIA')	Redcar Flats LCTr would reduce to not significant during opening and operation. The assessment has determined that a small number of recreational receptors - South Gare Breakwater (Viewpoint 5), England Coastal Path (Viewpoint 7) and Redcar seafront (Viewpoint 8) - are likely to experience significant short-term adverse effects during construction as a result of the close distance to the PCC Site and limited intervening vegetation. The impact on receptors at South Gare Breakwater (Viewpoint 5) and Redcar Seafront (Viewpoint 8) would reduce to not significant during operation; however, effects would remain significant during operation along the England Coastal Path (Viewpoint 7) due to the close proximity and prominence of the buildings and structures at the PCC Site. In designing the Proposed Development, the Applicants have sought to minimise it landscape and visual effects. This has included seeking to consolidate the built form at the PCC Site where possible, with the main buildings and structures set well back from the site boundaries. Appropriate materials and colours will also be selected used for the external finishes of the buildings/structures in order to minimise landscape and visual effects and the details of these will be secured through Requirement 3 'Detailed design' of the draft DCO. Notwithstanding the above, paragraph 2.65 of NPS EN-2 recognises that *"It is not possible to eliminate the visual impacts associated with a fossil fuel generating station."*

Generic Impact	Summary	Assessment
	as part of the ES and consider the design of the plant and materials to be used, including the visual impact of the stack. In terms of SoS decision-making, paragraph 2.6.5 highlights that it is not possible to eliminate the visual impacts associated with fossil fuel generating stations and so the focus should be on minimising impacts as far as it reasonably practicable. EN-4 paragraphs 2.21.1 and 2.21.2 note that the effects of gas supply pipelines on the landscape will generally be temporary and long-term impacts are likely to be limited as the infrastructure is usually buried. Impacts are likely to include limitations on the ability to replant landscape features such as hedgerows or deep-rooted trees over or adjacent to the pipeline and the structures/indication points necessary to identify the pipeline route and provide it with service access.	It is considered that the significant benefits of the Proposed Development outweigh its limited landscape and visual effects. Requirement 4 'Landscaping and biodiversity protection and management and enhancement' of the draft DCO will secure the details of landscaping associated with the Proposed Development.

Generic Impact	Summary	Assessment
	EN-5 paragraph 2.8.4 requires applicants to give appropriate consideration to undergrounding electrical connections as a way of mitigating landscape and visual impacts.	
Land use including open space, green infrastructure and Green Belt (EN-1, 5.10)	EN-1 notes at Section 5.10 that as energy infrastructure Proposed Developments will have direct effects on the existing use of the proposed site and may have indirect effects on the use, or planned use, of land in the vicinity for other types of development. Paragraph 5.10.3 recognises that it may not be possible for many forms of energy infrastructure to be sited on previously developed land, while paragraph 5.10.5 requires applicants to assess the effects of the proposed development on existing land uses at and near the site. Paragraph 5.10.9 requires applicants to safeguard any mineral resources on the	Much of the Site comprises existing or former industrial land. The PCC Site is located on part of the former Redcar Steel Works Site while the connection corridors largely follow existing pipeline corridors that cross existing or former industrial land. The routing of the connection corridors has sought to avoid sensitive receptors and minimise impacts on these. Section 6.7 of Chapter 6 'Design Evolution and Alternatives' of ES Volume I sets out the approach that has been taken to the routing of the connection corridors. The Proposed Development will not have any permanent effects upon green infrastructure or open space and does not involve any Green Belt land. Water connection corridors and the CO_2 Export Pipeline will cross Coatham Dunes/Sands. However, it is proposed to use horizontal direction drilling techniques for the installation of this infrastructure in order to minimise impacts on and disruption to this area which is used for recreation purposes and is of nature conversation value. Sand and gravel, limestone, potash, salt, gypsum/anhydrite and coal are widespread across the Tees Valley. These minerals resources are both shallow and deep and in many cases are subject to safeguarding in the Joint Minerals

Generic Impact	Summary	Assessment
	proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place. Paragraph 5.10.9 states mitigation measures should be considered for development affecting green infrastructure to ensure the connectivity of the green infrastructure network is maintained.	and Waste DPD. Much of the Site is identified as being within an area that is identified for salt and gypsum. The Proposed Development will not sterilise local mineral resources, notably salt and gypsum. These mineral resources are present at depth below the PCC Site and parts of the connection corridors. Some of these areas, including the PCC Site already covered by existing industrial development. The Proposed Development does not therefore alter or preclude the ability to access these minerals for future extraction. It is therefore considered that the risk to mineral resources considered is negligible (Chapter 10 'Geology and Hydrogeology, ES Volume I). Notwithstanding this, it is considered that the need for the Proposed Development and the benefits that it will bring outweigh any minerals considerations.
Noise and vibration (EN-1, 5.11; EN-2, 2.7; EN-4, 2.20; and EN-5, 2.9)	EN-1 (Section 5.11) requires a noise assessment for development that is likely to cause noise impacts through operational use and proximity to noise sensitive receptors. Paragraph 5.11.8 of EN-1 requires demonstration of good design through selection of the quietest cost-effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to	The potential noise and vibration effects of the Proposed Development are assessed within Chapter 11 'Noise and Vibration' of ES Volume I. Chapter 11 assesses the potential impact of a number of sources of noise and vibration during construction, operation and decommissioning. It takes into account various proposed mitigation measures for the different stages including design and impact avoidance. The residual effects, taking account of mitigation, are set out at Table 11-35 'Summary of Effects'. With mitigation, construction effects on receptors are reduced to either minor adverse or less or negligible adverse or less. There would be a moderate/minor adverse effect or less during commissioning on a number of residential receptors due to CO_2

Generic Impact	Summary	Assessment
	minimise noise emissions and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission. Paragraph 5.11.9 goes on to state that developments should: • avoid significant adverse impacts on health and quality of life from noise; • mitigate and minimise other adverse impacts on health and quality of life from noise; and, • where possible contribute to improvements to health and quality of life through the effective management and control of noise. EN-2, Section 2.7 covers noise and vibration in relation to fossil fuel generating stations. Paragraph 2.7.2 confirms that the ES should include a noise assessment, while paragraph	venting, however, this would be planned and temporary. The operation of the PCC Site on residential receptors is found to be minor adverse or less. The CEMP, which is secured by Requirement 16 of the draft DCO (Document Ref. 2.1) will include a number of measures to control noise and vibration effects during construction. Further controls on noise and vibration will be provided by Requirements 20 'Construction hours'; 21 'Control of noise and vibration – construction'; and 22 'Control of noise – operation'.

Generic Impact	Summary	Assessment
	2.7.3 states that the SoS should be satisfied that noise will be adequately mitigated through requirements. Furthermore, consideration should be given to the extent that operational noise will be controlled by the EA. EN-4, Section 2.20 deals with the noise and vibration effects of gas supply pipelines. Paragraphs 2.20.2-2.20.3 note that there will be noise and possibly vibration effects during the construction phase and also possibly during commissioning as a result of drying after hydrotesting and using air compressors. A new gas pipeline (paragraph 2.20.4) may require an above ground installation. These may be located in quiet rural areas and therefore the control of noise from these facilities is likely to be an important consideration. Paragraph 2.20.7 outlines mitigation measures for pipelines and AGIs, including, amongst others:	

Generic Impact	Summary	Assessment
	• screening or enclosure of compressors and pumps; • use of sound attenuators on ventilation systems; • acoustic lagging of pipework; and • not impact piling such as auger boring. EN-5 (paragraph 2.9.11) requires relevant assessment methodologies to assess the noise impacts from the proposed electricity network infrastructure. It goes on to state that (paragraph 2.9.12) mitigation measures that should be followed, including the positioning of lines to help mitigate noise through: • ensuring that the appropriately sized conductor arrangement is used to minimise potential noise; • quality assurance through manufacturing and transportation to avoid damage to overhead line	

Generic Impact	Summary	Assessment
	conductors which can increase potential noise effects; and • ensuring that conductors are kept clean and free of surface contaminants during stringing/installation.	
Socio-economic (EN-1, 5.12)	Paragraph 5.12.1 of EN-1 acknowledges that the construction, operation and decommissioning of energy infrastructure may have socio-economic impacts at local and regional levels. Paragraph 5.12.3 states that the assessment within the ES should consider all relevant socio-economic impacts. Paragraph 5.12.6 confirms that SoS will have regard to the potential socio-economic impacts of new energy infrastructure.	Chapter 20 'Socio-economic and Tourism). This includes the benefits of the Proposed Development in terms of employment generation both through direct employment and wider benefits for the economy. It is estimated that up to 2,440 net construction jobs (direct and indirect) would be generated per annum of which 1,220 are expected to be from the local area (the Middlesbrough and Stockton TTWA). Jobs during operation are estimated at up to 130 FTE (direct and indirect) with the majority (110) filled by people from the local area. No significant adverse effects in terms of socio-economics or tourism are predicted during the construction, maintenance, operation of decommissioning of the Proposed Development, and as such, no mitigation is required. It is considered that the Proposed Development would have an overall positive effect on the local area. The draft DCO includes a requirement (Requirement 30) that would secure an employment and skills plan, to be agreed with RCBC and STBC, to maximise the local employment and training opportunities provided by the Proposed Development.

Generic Impact	Summary	Assessment
	Paragraph 5.12.9 states that it should be considered whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of a development.	
Traffic and transport (EN-1, 5.13; EN-2, 2.2.5-2.2.6)	EN-1 (paragraph 5.13.3) states that if a Proposed Development is likely to have significant transport implications, the applicant's ES should include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport guidance, or any successor to such methodology. Applicants should also consult the Highways England and highway authorities as appropriate on the assessment and mitigation. Paragraph 5.13.4 requires applicants to prepare a travel plan including demand management measures to mitigate transport impacts.	Chapter 16 'Traffic and Transport' of ES Volume I addresses the potential effects of the Proposed Development on traffic and transport. The Chapter has been informed by a Transport Assessment ('TA') within ES Volume III (Appendix 16A). The scope of the TA has taken into account comments received from Highways England ('HE') and junction modelling has also been discussed and agreed with HE. ES Volume III also includes a Framework Construction Workers Travel Plan (Appendix 16B) and a Framework Construction Traffic Management Plan (Appendix 16C). The assessment has been prepared on a worst-case and makes no allowance for the delivery of construction materials of items of plant or equipment by water or rail. However, the Site does have access to water and rail facilities and it is expected that the appointed contractor will review options for the use of these modes when sourcing construction materials and in particular for the delivery of Abnormal Indivisible Loads to the Site. Section 16.6 of Chapter 16 provides the assessment of likely impacts and effects. The main impact will be during the construction phase that will last for around 48 months. Traffic during the operational phase will be much lower and relate to the operational staff accessing the site, HGV traffic generated by

Generic Impact	Summary	Assessment
	Paragraph 5.13.6 also requires applicants to include mitigation measures to sufficiently reduce the impact on transport infrastructure to acceptable levels. EN-2 (paragraph 2.2.5) states new fossil fuel generating stations need to be accessible for the delivery and removal of construction materials, fuel, waste and equipment and for employees, while paragraph 2.2.6 notes that the Government supports the multi-modal transportation of materials by water or rail where possible.	deliveries of operational and maintenance plant and equipment and period maintenance activities, when a number of contractors will be on site. The residual effects for the construction, operational and decommissioning stages of the Proposed Development (taking account of mitigation) are predicted to be negligible adverse (not significant). The additional traffic due to Proposed Development construction activities will result in small, temporary increases of traffic flows, including HGVs, on the roads leading to the Site. In line with the significance criteria presented in Chapter 16 and in the TA, the effects of construction traffic on all road sections and junctions are anticipated to be negligible and therefore not significant. Notwithstanding this, a number of traffic management measures will be implemented during the construction stage to minimise traffic impacts upon the local road network (see Section 16.5 of Chapter 16). The generation of traffic during operation will be minimal when compared to the construction phase. Therefore, operational phase traffic effects are also considered to be negligible (not significant). The generation of traffic during future decommissioning is expected to involve traffic movements associated with the removal (and recycling, as appropriate) of material arising from demolition and potentially the import of materials for land restoration and re-instatement. However, the effects of decommissioning traffic would be no greater than that of the construction traffic and are, therefore, anticipated to be negligible (not significant). A Decommissioning

Generic Impact	Summary	Assessment
		Traffic Management Plan would be implemented during the decommissioning phase to control the impact and routing of HGVs. Requirements 18 and 19 of the draft DCO will secure a Construction Traffic Management Plan (CTMP) and Construction Workers Travel Plan (CWTP), both of which form part of the proposed mitigation for traffic and transport effects.
Waste management (EN-1, 5.14)	Section 5.14 of EN-1 acknowledges that all large infrastructure Proposed Developments are likely to generate hazardous and non-hazardous waste. Paragraph 5.14.6 requires applicants to produce a Site Waste Management Plan ('SWMP') and states that the applicant should seek to minimise the volume of waste produced and the volume of waste sent for disposal. Paragraph 5.14.6 states the SoS should be satisfied that: • waste will be properly managed, both on and off site;	The Applicants will require that the appointed contractor produces and maintains a final CEMP to control site activities to minimise any impact on the environment. The final CEMP will include industry best practice measures, and specific measures set out in the ES in accordance with the Framework CEMP (Volume III – Appendix 5A). In order to manage and monitor waste generated on the Site during construction, a Framework Site Waste Management Plan (SWMP) has also been developed as part of the Framework CEMP, which allows for waste streams to be estimated and monitored and goals set with regards to the waste produced. The SWMP will require that the contractor segregates waste streams on-site, prior to them being taken to a waste facility for recycling or disposal. All waste removal from the Site will be undertaken by licensed waste carriers and taken to permitted waste facilities. The final CEMP and SWMP will be secured by Requirements 16 and 24 of the draft DCO.

Generic Impact	Summary	Assessment
	• can be dealt with appropriately by the available waste infrastructure; and • adequate steps have been taken to minimise the volume of waste.	
Water quality and resources (EN-1, 5.15; EN-2, 2.10; and EN-4 2.22)	EN-1 (Section 5.15) states that, where a Proposed Development is likely to have effects on water quality and resources an assessment should be undertaken of the impacts of the Proposed Development. Paragraph 5.15.6 states that the SoS should be satisfied that Proposed Developments have regard to the River Basin Management Plans and meet the requirement of the Water Framework Directive and related directives, including those on priority substances and groundwater. Paragraph 5.15.9 states that the risk of impacts on the water environment can be reduced through careful design to	The impact of the Proposed Development upon water quality and resources is considered at Chapter 9 'Surface Water, Hydrology and Flood Risk' of ES Volume I. A summary of the residual effects on water resources in provided at Section 9.9 and Table 9-19. A short-term and localised moderate (significant) effect has been identified to water quality (mobilisation of fine sediment) in Tees Bay due to the potential works to install an outfall head (if the existing water discharge pipeline and outfall needs repairs). This effect would be temporary, very localised and will not cause a failure against WFD classifications or objectives given the large scale of this waterbody and the temporary nature of the works. There is not expected to be any long-term effect given the brevity of the impact. In the event that the existing outfall cannot be used, a replacement outfall will be constructed. It has been determined that this would be constructed along the same route as the CO_2 Export Pipeline so as to minimise disturbance of the SPA/Ramsar/SSSI. A potential moderate adverse (significant) temporary and localised effect could occur to water quality in Tees Bay and Tees Estuary relating to accidental

Generic Impact	Summary	Assessment
	facilitate adherence to good pollution control practice. EN-2 (paragraphs 2.2.7 - 2.2.9) notes that generating stations, in particular coal-fired stations, have very high-water demands, which means that preferred site locations are likely to be coastal or alongside large rivers to extract sufficient water. EN-4, Section 2.22 deals with water quality and resources relating to gas supply pipelines. It notes (paragraph 2.22.2) that the construction of pipelines creates corridors of surface clearance and excavation that can potentially affect watercourses, aquifers, water abstraction and discharge points, areas prone to flooding and ecological receptors. Pipeline impacts could include inadequate or excessive drainage, interference with groundwater flow pathways, mobilisation of contaminants already in the ground,	spillages given that they are to be worked on directly. There could also be a significant moderate adverse effect on Belasis Beck if work is required to the pipe bridge over that watercourse. However, it is proposed that a programme of water quality monitoring is undertaken during construction to identify any pollution, and remedial measures implemented. With appropriate monitoring (outlined in Section 9.7 of Chapter 9), it is considered that the significance of effect can reasonably be lowered to slight adverse (not significant) for these three waterbodies. All other residual effects are considered to be neutral to slight (not significant), provided that the embedded mitigation measures set out in Chapter 9 are implemented. Requirement 11 'Surface and foul water drainage' of the draft DCO secures details of temporary surface water and drainage systems, including means of pollution control for the construction phase of the Proposed Development in accordance with the CEMP. The CEMP is secured by Requirement 16. Requirement 13 secures details of a scheme to deal with the contamination of ground water, which is likely to cause significant harm to person or pollution of controlled waters or the environment.

Generic Impact	Summary	Assessment
	the introduction of new pollutants, flooding, disturbance to water ecology, pollution due to silt from construction and disturbance to species and their habitats. Impacts during construction should be avoided as far as possible through route selection or mitigated if unavoidable and ground should be reinstated after construction. Mitigation measures (paragraph 2.22.6) to protect the water environment may include techniques for crossing rivers and managing surface water before and after construction, including restoring vegetation and using sustainable drainage systems to control run-off.	

6.3.2 Table 6.1 therefore demonstrates that there is no conflict between the Proposed Development and the relevant generic impacts within the energy NPSs.

6.4 Technology specific considerations

6.4.1 The technology specific considerations of relevance to the Proposed Development that are contained within EN-2, EN-4 and EN-5 (and that have not already been addressed in Table 6.1 above) are considered in **Table 6.2** below.

Table 6.2 – Technology Specific Considerations

Consideration	Summary	Assessment
Factors influencing site selection by developers (EN-2, 2.2, EN-4, 2.19, & EN-5, 2.2)	EN-2, paragraph 2.2.2, notes that fossil fuel generating stations have large land footprints and will therefore only be possible where the applicant is able to acquire a suitably sized site. The site will also need to be big enough for CCS. Depending on the processes (paragraph 2.2.3) fossil fuel generating station may require storage and use of hazardous substances, which may have an impact on potential land use in the vicinity. Development of a CHP facility may also have implications for the size of site (paragraph 2.2.4). EN-2, paragraph 2.2.5, states that fossil fuel generating stations need to be accessible for the delivery of construction materials, fuel, waste and equipment and for employees. Government policy encourages multi-modal transport and materials may be transported by rail and water where possible. This will however be	Chapter 6 'Design Evolution and Alternatives' sets out the process that was followed in selecting the Site, including the decisions made regarding the routing of the various connection corridors. The key locational criteria used in the selection process included an east coast location (due to the proximity of potential storage sites in the North Sea); proximity to the coast to minimise the onshore section of the CO_2 Export Pipeline; avoidance of residential areas; proximity to industrial emitters that could connection into the CO_2 Gathering Network; proximity to necessary infrastructure connections, including gas network, electricity grid and water supply; sufficient space, including for future expansion; the use of brownfield land where possible; and minimisation of environmental effects and risks. Teesside performed strongly against these criteria and was selected as the preferred location. Within Teesside a number of sites were assessed and shortlisted before the former Redcar Steel Works Site was selected. Key factors in its selection again included the proximity to the North Sea for CO_2 transport; relative remoteness from residential properties; proximity to required connections; the availability of brownfield land; and being accessible to port facilities for the import of construction materials and large items.

Consideration	Summary	Assessment
	determined by the economics of the proposed development (paragraph 2.2.6). EN-2 (paragraphs 2.2.7 - 2.2.9) also highlights a number of matters relating to the demand that fossil fuel generating stations may place on water resources and access to water supplies. EN-4 (paragraphs 2.19.7 - 2.19.10) sets out various considerations in relation to site selection for gas supply pipelines. Paragraphs 2.19.8 and 2.19.9 list examples of various land uses and engineering works which could be constraints. These include proximity to existing and planned residential areas; schools and hospitals; railway and road crossings; main river and watercourse crossings; and environmentally sensitive areas. When choosing a pipeline route, applicants should seek to avoid or minimise adverse effects from usage below the surface (paragraph 2.19.10). Where it is not	The connection corridors have been progressively refined to minimise impacts on residential and ecological receptors, land interests and recreational and amenity areas. The final connection corridors (as detailed within the Application) largely follow existing connection corridors that cross existing and former industrial land. Where sensitive areas cannot be avoided – for instance the water connection corridors and CO_2 Export Pipeline crossing Coatham Dunes/Sands – specialist techniques, such as HDD will be used, to minimise impact on and disruption to the area.

Consideration	Summary	Assessment
	possible to avoid below ground works mitigation measures may include protection or diversion of underground services, horizontal directional drilling ('HDD') and re-routing. EN-5 (paragraphs 2.2.1 - 2.2.7) sets out various considerations in relation to the selection of routes and locations for electricity infrastructure. Paragraph 2.2.2 recognises that the general location of such infrastructure is normally determined by the location of the generating station and existing network infrastructure.	
Pipeline Safety (EN-4, 2.19.4 - 2.19.6)	Pipelines need to comply with the Pipelines Safety Regulations 1996, which requires pipelines to be designed, constructed and operated so that the risks are as low as is reasonably practicable ('ALARP').	The various pipelines will be manufactured and installed so as to fully comply with the Pipeline Safety Regulations 1996 and all other relevant standards in order to that risks are ALARP. Chapter 22 'Major Accidents and Natural Disasters' confirms that where the pipelines run close to existing gas pipelines and pipelines carrying hazardous substances, additional measures such as thickened pipe walls will be used where appropriate to minimise the risk of any domino effect with existing infrastructure in the event of a failure.
Soil and Geology (EN-4, 2.23)	Paragraphs 2.23.2 – 2.23.4 state that applicants should assess the stability of	Chapter 10 'Geology and Hydrogeology' of ES Volume I considers the potential effects of the Proposed Development upon geology and soils. As

Consideration	Summary	Assessment
	the ground conditions associated with the pipeline route and incorporate the findings of that assessment in the ES (see Section 4.2 of EN-1) as appropriate. The assessment should cover the options considered for installing the pipeline and weigh up the impacts of the means of installation. Where the applicant proposes to use HDD as the means of installing a pipeline under a National or European Site and mitigating the impacts, the assessment should cover whether the geological conditions are suitable for HDD. When considering any application where the pipeline goes under a designated area of geological or geomorphological interest, the applicant should submit details of alternative routes, which either bypass the designated area or reduce the	confirmed above, the Site does not contain any areas that are designated at a national, regional or local level in terms of geological interest. The Chapter does not identify any particular issues in terms of soils or geology. The PCC Site and the connection corridors largely consist of made ground or are in industrial use. Soils are recorded as Grade 4 or 5 and are Non-agricultural/urban and therefore the impact from any loss as a result of construction is considered negligible. The majority of impacts relating to geology, hydrogeology and contaminated land that are expected to arise as a result of the Proposed Development are anticipated to occur during the remediation and construction works. A Ground Investigation will be carried out to inform the assessment of ground conditions and design and installation of pipelines. Further assessment of any existing contamination will be risk based. Effects are reported at Tables 10-16 and 10-17 of Chapter 10. The majority of effects on geology, minerals, soils, groundwater, contamination (inclusive of embedded mitigation) are shown to be neutral, slight (adverse) or slight/moderate (adverse). Mitigation and best practice measures during construction will be secured through the CEMP (Requirement 16 of the draft DCO). The approach that has been taken to the routing of the various connection corridors has been to avoid and minimise impacts on sensitive receptors and

Consideration	Summary	Assessment
	length of pipeline through the designated area to the minimum possible, and the reasons why they were discounted. Applicants should consult with the relevant statutory consultees at an early stage.	other features such as heritage assets. Chapter 6 'Design Evolution and Alternatives' provides an explanation of the design process that has been followed in relation to the connection corridors and the decisions that have been made (the main design changes are summarised at Table 6-2). In the case of the CO_2 and water corridors, the decision has been made to employ HDD techniques in order to minimise impacts upon Coatham Dunes/Sands and the protected nature conservations sites (SPA/Ramsar/SSSI). Due to the proximity of and extent of the SPA/Ramsar/SSSI it is has not been feasible to select alternative routes to bypass them. Notwithstanding the above factors, the HRA undertaken by the Applicants (which includes an Appropriate Assessment) concludes that there will be no adverse effects on the integrity of any European site either alone or in combination with other plans and projects.
Electric and Magnetic Fields (EMFs) (EN-5, 2.10)	Paragraph 2.10.13 states the applicant should consider the following factors in relation to EMFs: • height, position, insulation and protection (electrical or mechanical as appropriate) measures subject to ensuring compliance with the Electricity	Chapter 23 'Population and Human Health' (Section 23.3) of ES Volume I considered EMFs. The risks associated with EMF have been derived considering the advice provided by Public Health England (PHE) in their response issued by PINS with the EIA Scoping Opinion (02.04.19). Additionally, the Electric and Magnetic Fields and Health website has been used in order to gather information on the EMF risks associated with the types of infrastructure proposed. ICNIRP

Consideration	Summary	Assessment
	Safety, Quality and Continuity Regulations 2002; • that optimal phasing of high voltage overhead power lines is introduced wherever possible and practicable in accordance with the Code of Practice to minimise effects of EMFs; and • any new advice emerging from the Department of Health relating to Government policy for EMF exposure guidelines.	guidelines have been used as the reference for the recommended limits of exposure of the general public, following current government policy. The assessment of potential EMF related effects does not follow the 'standard' EIA methodology of identifying the sensitivity of receptors and magnitude of effects to classify the effect using a matrix. Rather, all human receptors located within the electrical field are identified and, with reference to the identified impact avoidance measures, effects are qualitatively either considered to be significant or not significant, based on professional judgement. The DECC Voluntary Code of Practice on compliance with EMF guidelines (DECC, 2012) advises that the Energy Networks Association (ENA) will maintain a publicly available list of types of equipment where the design is such that it is not capable of exceeding the ICNIRP exposure guidelines on its website. This obligation is set out on the industry website (www.emfs.info). The nearest residential receptors are over 500m from the Electrical Connection corridor at Warrenby (Marsh House Farm) and Dormanstown (housing on Broadway West). High-voltage underground cables can produce higher magnetic fields directly above them than an overhead line would produce at ground level, because the physical distance from the underground cable is smaller. However, the field falls more rapidly with distance to the sides, and they produce no external electric field. Such cables are not normally located beneath buildings (Energy Networks Association, 2012).

Consideration	Summary	Assessment
		As a result of the type and location of the 275kV electrical connection (routed underground) and its distance from residential areas, the effect during operation on public health will be neutral and no formal assessment of risks for the connection of the Low Carbon Electricity Generating Station to the National Electricity Transmission System is required.

6.4.2 It has therefore been demonstrated in Table 6.2 that there is no conflict between the Proposed Development and the relevant technology specific considerations set out in the NPSs.

6.5 The National Planning Policy Framework (Ministry of Housing, Communities & Local Government, June 2019)

6.5.1 An updated version of the NPPF was published by the Ministry of Housing, Communities & Local Government (MHCLG) in June 2019. The NPPF sets out the Government's planning policies for England and how these are to be applied. The NPPF is supported by the Planning Practice Guidance (PPG), which provides more detailed guidance on various aspects of planning.

6.5.2 Paragraph 5 confirms that the NPPF does not contain specific policies for NSIPs and that these are determined in accordance with the decision making framework set by the PA 2008, related regulations and the relevant NPSs as well as any other matters that are important and relevant. Such matters may include the NPPF.

6.5.3 Section 2 'Achieving sustainable development' confirms (paragraph 7) that the purpose of the planning system is to contribute to the achievement of sustainable development, summarised as *"meeting the needs of the present without compromising the ability of future generations to meet their own needs".* Paragraph 8 goes on to identify three overarching objectives to the achievement of sustainable development, which are interdependent and need to be pursued in mutually supportive ways. These are:

- an economic objective - to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
- a social objective - to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
- an environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

6.5.4 Central to the NPPF is 'a presumption in favour of sustainable development'. This is highlighted at Paragraph 11. For decision-making, this means approving applications that accord with the development plan without delay.

6.5.5 The NPPF is supportive of infrastructure projects. One of the methods of fulfilling the objective of sustainable development listed at paragraph 8 is through the *"provision of infrastructure"*.

6.5.6 Paragraph 148 in Section 14 'Meeting the challenge of climate change, flooding and coastal change states that:

"The planning system should support the transition to a low carbon future in a changing climate … it should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure". [underlining added]

6.5.7 Paragraph 154 states that when determining application for renewable and low carbon development, there should be no requirement for applicants to demonstrate the overall need for renewable or low carbon energy in application submission and that applications for renewable or low carbon development should be approved if their impacts are (or can be made) acceptable.

6.5.8 NPPF policies of particular relevance include building a strong, competitive economy, promoting sustainable transport, achieving well-designed places, meeting the challenge of climate change, flooding and coastal change, conserving and enhancing the natural environment and conserving and enhancing the historic environment. A summary of those policies and how the Proposed Development complies with them is provided in **Table 6.3** below.

Table 6.3 – NPPF Policies

NPPF Ref.	Policy Summary	Assessment
Chapter 6 Building a strong, competitive economy	Confirms that the Government is committed to securing economic growth and productivity and allowing each area to build on its strengths, counter any weaknesses and address the challenges of the future. Paragraph 81 makes it clear that the planning system should do all it can to support sustainable economic growth though, amongst other measures, planning proactively and removing barriers to investment such as a lack of infrastructure.	The Proposed Development will contribute toward sustainable economic development by providing new low carbon electric generating capacity, for which there is a confirmed need, thereby contributing toward the security of electricity supplies, while helping safeguard jobs in existing carbon intensive industries (enabling them to decarbonise) as well as creating opportunities for emerging green industries such as hydrogen production. The Proposed Development will also create significant employment opportunities during its construction and operational phases.
Chapter 9 Promoting sustainable transport	Aimed at facilitating more sustainable transport choices so as to contribute to wider sustainability and public health objectives. Paragraph 108 states that in assessing sites for applications it should be ensured that appropriate opportunities to	The main potential impact of the Proposed Development on transport will be during the construction phase. The assessment of traffic and transport in the ES is based on a worst-case scenario (all transport by road, including construction materials) but demonstrates traffic and transport effects during construction will be acceptable and will not adversely impact on the highway network. The transport effects during operation would be limited. The Applicants have submitted a framework Construction Traffic Management Plan (CTMP) and a framework Construction Workers Travel Plan (CWTP) with the Application. These

	promote sustainable transport modes can be – or have been – taken up, safe and suitable access to the site can be achieved for all users and any significant impacts from the development on the transport network or on highway safety can be cost effectively mitigated to an acceptable degree. Paragraph 111 states that all developments that generate significant amounts of movement should be supported by a transport statement or assessment and these should consider the opportunities to make use of sustainable transport modes.	include measures to manage and minimise transport impacts during construction. The final CTMP and CWTP will be secured by requirements within the draft DCO and implemented by the appointed contractor(s).
Chapter 11 Making effective use of land	Aimed at promoting the effective use of land, including by (paragraph 118c) giving substantial weight to the use of suitable brownfield land.	Much of the Site involves former or existing industrial and previously developed land. The PCC Site comprises part of the former Redcar Steel Works Site. The connection corridors have been routed where practicable to utilise brownfield land and existing pipeline/cable routes and so minimise environmental impacts. The Proposed Development, notably the location and extent of the PCC Site (and its use) is consistent with the planned redevelopment of the South Tees Area/Teesworks as set out in the South Tees SPD. The Proposed Development therefore makes effective use of land.

Chapter 12 Achieving well-designed places	Deals with the matter of design in the built environment. Paragraph 124 confirms that the Government attaches great importance to good design which is a key aspect of sustainable development. Paragraph 128 goes on to state that design quality should be considered throughout the evolution of individual proposals and applicants should work closely with those affected.	The design of the Proposed Development is appropriate in terms of its context and setting, which is very much industrial, and it incorporates the principles of 'good design' at set out in the Design and Access Statement. The buildings and structures will be set well within the PCC Site boundaries in accordance with the Teesworks Design Guide. The appearance of the buildings and structures will be consistent with the 'Large-scale Industrial Operations' (including major energy generation) typology identified within the Teesworks Design Guide and the use of materials will reflect the design Guide. The appearance of the buildings/structures is also consistent with the fact that the PCC Site is not identified as a Gateway Plot or a primary route within the Teesworks area. The PCC Site will also incorporate appropriate landscaping and access arrangements. The various connections will comprise primarily of pipelines and cables, which will for the for the most part be installed below ground or upon existing pipe-racking and structures within existing infrastructure corridors. The infrastructure required for the connections will not therefore be highly visible, nor alter the use or character of the land to which they relate. The approach that has been taken to selecting the various connections corridors has been to maintain separation from and limit effects upon sensitive receptors such as residential properties and areas of amenity of nature conservation value and minimise as far as possible the crossings of roads, railways and watercourses. The detailed design of the Proposed Development will be secured by a number of requirements within the draft DCO.

Chapter 14 Meeting the challenge of climate change, flooding and coastal change	Focuses upon adapting to and mitigating the effects of climate change. Paragraph 151 highlights that planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy. Paragraph 155 warns that inappropriate development in areas at risk of flooding should be avoided but where it is necessary the development should be made safe for its lifetime without increasing flood risk elsewhere. If it is not possible for development to be located in zones with a lower risk of flooding the exception test may have to be applied.	The Proposed Development incorporates a number of measures within its design to ensure that it will be resilient in terms of the effects of climate change as well as contributing to mitigating those effects. This includes appropriate flood risk mitigation and landscaping and biodiversity enhancement. Neither should it be overlooked that the Proposed Development will not only capture emissions from the Low Carbon Electricity Generating Station but also provide infrastructure to assist in decarbonising industry on Teesside. The ES (Chapter 21 'Climate Change') confirms that the Proposed Development will not result in significant climate changes effects and that the NZT Project as a whole could result in a net reduction in CO_2 emissions from current levels, with a beneficial effect on annual UK carbon emissions.
Chapter 15	Aimed at protecting and enhancing value landscapes,	The ES demonstrates that the Proposed Development will not result in unacceptable impacts on the natural environment, in terms of matters such as

Conserving and enhancing the natural environment	recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital, minimising impacts on and where possible providing net gains for biodiversity and preventing new and existing development from contributing to, being put at risk from or being adversely affected by unacceptable levels of soil, air, water or noise pollution and land instability.	ecology/nature conservation, landscape, and water quality, amongst others. ecology. The HRA undertaken confirms that Proposed Development will not adversely affect the integrity of any European sites either alone or in combination with other plans and projects. Furthermore, the assessments in the ES confirm that impacts upon the natural environment, taking account of mitigation, are either not significant or can be reduced to acceptable levels. The Application also includes proposals for landscape and biodiversity enhancement.
Chapter 16 Conserving and enhancing the historic environment	Seeks to conserve heritage assets so that they can be enjoyed for their contribution to the quality of life of existing and future generations (paragraphs 184-202). Paragraph 189 states that where a development proposal includes, or has potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based	There are limited heritage assets within the boundary of the Site. The Redcar Blast Furnace lies adjacent to the PCC Site and the CO_2 and water discharge (replacement outfall) connection corridors include remains of a WWI rifle range. These assets are not designated assets and are of medium value. The ES assesses the effects on the setting of the Blast Furnace as being neutral while appropriate mitigation is included within the Application in respect of the WWI rifle range (use of trenchless construction techniques). Furthermore, no significant impacts are identified in terms of any marine heritage.

	assessment and, where necessary, a field evaluation.	

6.5.9 Table 6.3 demonstrates that there is no conflict between the Proposed Development and the key policies contained within the NPPF.

6.6 Statutory Development Plan Policy

6.6.1 As confirmed in Section 3, the statutory development plan for the Proposed Development comprises the following development plan documents ('DPDs'):

- The Redcar & Cleveland Local Plan and Policies Map (adopted May 2018).
- The Stockton-on-Tees Borough Council Local Plan and Policies Map (adopted January 2019).
- The Tees Valley Joint Minerals and Waste DPDs (adopted September 2011).

6.6.2 RCBC has also produced 'The South Tees Area Supplementary Planning Document' ('SPD') (adopted May 2018). Although this is not a DPD, it is a material planning consideration to be taken into account in respect of development proposals being advanced within South Tees Area/Teesworks.

6.6.3 The DPD and SPD policies of most relevance to the Proposed Development are set out and summarised in **Table 6.4** below along with how it complies with those policies. However, given that EN-1, EN-2, EN-4 and EN-5 provide the primary policy for the determination of the Application, and include detailed assessment criteria and policies for energy NSIPs (which address many of the matters covered by the DPD and SPD policies), a summarised response has been made to each policy.

Table 6.4 – Statutory Development Plan Policies

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
SD1	RCBC Local Plan	Sustainable Development	When considering development proposals, the Council will take a positive approach reflecting the presumption in favour of sustainable development within the NPPF. Developments should improve the economic, social and environmental conditions of the area.	The Proposed Development is consistent with the principles of sustainable development. It will bring brownfield land back into beneficial use, contributing toward the regeneration of the South Tees Area/Teesworks. It will contribute to the decarbonisation of Teesside in line with the Government's legally binding target of Net Zero by 2050 and create significant employment opportunities. The ES has demonstrated that the Proposed Development it will not result in unacceptable impacts on the environment and it includes appropriate mitigation and control measures.
SD2	RCBC Local Plan	Locational Policy	Development will be directed to the most sustainable locations in the Borough. The majority of development will be focused in the urban and coastal areas. Priority will be given to	The Proposed Development is consistent with the Locational Policy in that it involves the redevelopment of brownfield industrial land within the South Tees Area/Teesworks. The routing of the connection corridors has sought to avoid and minimise impacts on sensitive receptors and areas of high environmental value and for the most part the follow existing pipeline/cable routes and involve existing or former industrial land.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			brownfield land in sustainable locations that is not of high environmental value.	
SD3	RCBC Local Plan	Development Limits	Within development limits, development will be supported, subject to meeting other policies in the Local Plan. Development beyond development limits will be to specific circumstances such as where the development requires a countryside location due to technical or operational reasons or it involves the redevelopment of brownfield land that is not of high environmental value.	As confirmed above, the Proposed Development involves the redevelopment of brownfield land. Much of the Site lies within areas of the Borough that are identified as suitable for energy and industrial use. Any development outside the Development Limits of the Borough is required for operational and technical reasons (to provide connections for the Proposed Development) and the Applicants have sought to minimise impacts and appropriate mitigation and control measures are included.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
SD4	RCBC Local Plan	General Development Principles	In assessing the suitability of a site or location, development will be permitted where it meets the requirements of the Locational Policy and will not have a significant adverse effect on amenity; result in unacceptable loss or significant adverse effect on the environment; avoids locations that put the environment or human health or safety at unacceptable; or results in adverse effects on nature conservation sites, amongst other matters. All development must be designed to a high standard.	As confirmed above, the Proposed Development is consistent with the Locational Policy. Furthermore, a comprehensive EIA of the Proposed Development has been undertaken, which demonstrates that it will not result in unacceptable impacts on nature conservation (the HRA confirms no adverse effects on the integrity of European sites), human health or safety. Furthermore, the design of the Proposed Development is appropriate in terms of its context and setting and it incorporates the principles of 'good design'.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
SD6	RCBC Local Plan	Renewable and Low Carbon Energy	Renewable and low carbon energy schemes will be supported and encouraged, and will be approved where their impact is, or can be made, acceptable. In determining applications for renewable and low carbon energy and associated infrastructure matters that will be taken into account include the scale of the development, impact on residential amenity, environmental impacts, the sensitivity of the landscape, airport and military considerations and the cumulative impact of proposals, amongst other matters.	The Proposed Development is entirely consistent with the policy to support renewable and low carbon energy within the area. It will provide a low carbon electricity generating station and a CO_2 gathering network that will support the decarbonisation of power generation and industry. The EIA confirms that the Proposed Development will not result in unacceptable impacts and any cumulative effects will be limited and outweighed by its substantial benefits.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
SD7	RCBC Local Plan	Flood and Water Management	Development in areas at risk of flooding will only be granted where it meets the sequential and exception tests, will be safe and does not increase flood risk elsewhere. Development will be expected to be designed to mitigate and adapt to climate change. A flood risk assessment will be required.	The EIA has assessed flood risk and water management and includes a Site-wide FRA. The PCC Site lies within Flood Zone 1 although there are parts of the Site that lie within Flood Zones 2 and 3. The Applicants have applied the Sequential Test to site selection and have sought to locate the elements of the Proposed Development within Flood Zone 1 where possible. Furthermore, the Proposed Development is 'Essential Infrastructure' and can be appropriate to those higher risk flood zones subject to satisfying the Exception Test. The Proposed Development will have very clear wider sustainability benefits to the community. It will contribute to the security of electricity supplies and provide infrastructure to decarbonise local industries while providing significant employment and economic benefits. Furthermore, the FRA demonstrates that the Proposed Development will be safe from the risk of flooding and will not increase the risk of flooding off-site. It is therefore considered that the Exception Test is satisfied.
ED6	RCBC Local Plan	Promoting Economic Growth	Policy ED6 confirms that land and buildings within existing employment areas shown on the Policies Map will continue to be developed and safeguarded for employment uses. It	The Proposed Development is consistent with the land uses that are identified as appropriate for the area (including the South Tees Area) covered by Policy ED6. As will be demonstrated below the Applicants have had regard to the South Tees Area SPD and there will be no adverse effects on the nearby protected nature conservation sites.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			goes onto state that specialist uses, including energy and heavy processing industries and port logistics will be focused in the South Tees Area, Wilton International and Skinningrove. In these areas proposals falling within Use Classes B1, B2, B8 and suitable employment related sui generis uses will be supported. Proposals in the South Tees Area should have regard to the South Tees Area SPD. Proposals will need to demonstrate that there will be no adverse effects on the integrity of the nearby protected nature conservation sites. Proposals will be	

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			encouraged to improve the quality of the environment.	
LS4	RCBC Local Plan	South Tees Spatial Strategy	The Spatial Strategy includes the South Tees Development Corporation area, Wilton International, Teesport and the South Tees Industrial Estates and Business Parks. The Policy aims to support the delivery of significant economic growth and job opportunities in this area, including encouraging clean and efficient industry to help reduce carbon emissions and the development of Carbon Capture and Storage ('CCS') to decarbonise the local economy. The	The Proposed Development will support the delivery of the Spatial Strategy for the South Tees Area. It will regenerate brownfield land, deliver CCS/CCUS infrastructure helping to decarbonise the local economy and create jobs. It will also contribute to the environmental quality of the area by bringing derelict land back into beneficial use and through the incorporation of landscape and biodiversity measures. The ES (and HRA) confirm that it will not result in adverse effects on the nearby protected nature conservation site or other nature conservation interests.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			Policy also seeks to improve the environmental quality of the area and to protect the nearby nature conservation sites.	
N1	RCBC Local Plan	Landscape	Policy N1 seeks to protect and enhance the Borough's landscapes. Development proposals will be considered within the context of the Landscape Character Assessment, the Landscape Character SPD and the Historic Landscape Characterisation. Proposals will not be permitted where they would lead to the loss of features important to the character of the	The Site is not subject to any national landscape designations, nether are there any within the immediate vicinity of the Site. Furthermore, the Proposed Development will not result in the loss of features that are important to the local landscape. The PCC Site will require the clearance and redevelopment of part of the derelict Redcar Steel Works Site but will not impact on features such as the Blast Furnace, while the routing of the connection corridors has sought to avoid and minimise impacts on sensitive receptors and areas of high environmental value and for the most part the follow existing pipeline/cable routes and involve existing or former industrial land. Chapter 17 of the ES provides an assessment of landscape and visual effects. It has identified a number of limited effects at three viewpoints mainly as a result of the scale of the buildings and structures at the PCC Site. The Applicants have sought to minimise landscape and visual effects by consolidating the built form at the PCC Site where possible, with the main buildings and structures set well back from the site boundaries. Appropriate materials and colours will also be selected used

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			landscape, its quality and distinctiveness, unless its benefits clearly outweigh landscape considerations.	for the external finishes of the buildings/structures in order to minimise effects further. However, is not possible to entirely hide or screen such infrastructure and this is recognised in the NPSs (EN-2, paragraph 2.65).
N2	RCBC Local Plan	Green Infrastructure	The Council will aim to protect and enhance the green infrastructure network. Opportunities to incorporate green infrastructure into development proposals should be sought. Green infrastructure includes strategic green infrastructure corridors, strategic gaps, green wedges, open spaces, strategic landscape areas, heritage assets, public rights of way and beck valleys and	The Proposed Development will not result in any permanent impact upon or loss of green infrastructure, green wedges, open spaces, water courses or public rights of way within the area. The Proposed Development does include proposals for landscape and biodiversity enhancement.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			watercourses. Where there is a loss of green infrastructure the principle of 'net gain' should apply.	
N3	RCBC Local Plan	Open Space and Recreation	Seeks to protect open space and recreation facilities from development.	As confirmed above, the Proposed Development will not result in any permanent impact upon or loss of open space. It is proposed to use HDD techniques in locations such as Coatham Dunes/Sands for the installation of the CO_2 Export Pipeline and water discharge (replacement outfall) connections in order to minimise impacts and disruption during construction.
N4	RCBC Local Plan	Biodiversity and Geological Conservation	Seeks to protect and enhance the Borough's biodiversity and geological resources. Development should avoid detrimental impacts on biodiversity and geodiversity whether individual or cumulative. Where this is not possible mitigation, or compensation must be	The ES has assessed the potential impact of the Proposed Development upon habitats and species, including terrestrial ecology, aquatic ecology, ornithology and marine ecology. Taking account of mitigation no unacceptable impacts have been identified. Furthermore, the HRA that has been undertaken confirms that there will be no adverse effects upon the Teesmouth and Cleveland Coast SPA/Ramsar, the North York Moors SAC/SPA other European sites of SSSIs. The Proposed Development also incorporates landscape and biodiversity enhancement measures and will achieve 'net gain' in terms of biodiversity at the PCC Site. The Proposed Development does not raise any issues in terms of geological conservation as there are no nationally, regionally or locally designated geological interest features within the Site.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			provided. Development proposals will be considered in accordance with the status of biodiversity and geodiversity sites within the hierarchy. Priority will be given to the protection of internationally important sites such as the Teesmouth and Cleveland Coast SPA/Ramsar and the North York Moors SPA and SAC. Development that is not directly related to the management of such sites and which is likely to have a significant effect upon them will be subject to an Appropriate Assessment. Development that will	

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			have an adverse impact on nationally important sites such as SSSI will not be allowed unless the benefits of the development outweigh the impacts; no reasonable alternatives are available; and mitigation, or where necessary compensation, is provided for the impact. The Policy also seek to safeguard locally important nature conservation sites. Wherever possible, development should provide 'net gains' in the value of biodiversity.	
HE2	RCBC Local Plan	Heritage Assets	Seeks to protect designated heritage assets and their	There are limited heritage assets within the boundary of the Site. The Redcar Blast Furnace lies adjacent to the PCC Site and there is a WWI rifle range within the CO_2 Export Pipeline and water discharge

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			settings as well as non-designated heritage assets of archaeological interest.	(replacement outfall) connection corridors. These assets are not designated assets and are of medium value. The ES assesses the effects on the setting of the Blast Furnace as being neutral while appropriate mitigation is included within the Application in respect of the WWI rifle range (use of trenchless construction techniques). Furthermore, no significant impacts are identified in terms of any marine heritage. The draft DCO includes a requirement to secure an appropriate archaeological Written Scheme of Investigation prior to construction.
TA1	RCBC Local Plan	Transport and New Development	The Council and its partners will ensure that the transport requirement of new development, commensurate to the scale and type of development, are taken into account and seek to promote sustainable travel to minimise environmental impacts and support residents' health and wellbeing. The Council will support the preparation and	The assessment of traffic and transport in the ES is based on a worst-case scenario (all transport by road, including construction materials). It demonstrates traffic and transport effects during construction will be acceptable and will not adversely impact on the highway network. The transport effects during operation would be limited. Framework CTMP and CWTPs will form part of the Application. These include measures to manage and minimise transport impacts during construction. The final CTMP and CWTPs will be secured by requirements within the draft DCO and implemented by the appointed contractor(s). The Applicants are also investigating, and are in discussion with relevant parties, over the use of port and rail facilities for the delivery of construction materials and large items during the construction phase.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			implementation of travels plan to encourage the use of sustainable modes.	
STDC1	South Tees Area SPD	Regeneration Priorities	The Council in partnership with STDC will seek to achieve the comprehensive development of the South Tees Area in order to realise an exemplar world class industrial business park. This will include prioritising uses connected with advanced manufacturing and new technologies; promoting and supporting uses and infrastructure connected to a low carbon economy; focusing on high-skilled	The Proposed Development is consistent with the policy objectives to achieve the comprehensive redevelopment of the South Tees Area/Teesworks. The PCC Site is located on land (within the Northern Industrial Zone 'NIZ') that is identified for energy uses and industry. In formulating their proposals the Applicants have had regard to the South Tees SPD and emerging Teesworks proposals in order to minimise impact and ensure that the comprehensive development of the area is delivered.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			employment opportunities; protecting heritage assets; improving connectivity and environmental quality. Piecemeal development will be resisted.	
STDC4	South Tees Area SPD	Economic Development Strategy	The Council in partnership with STDC will support economic development of the South Tees Area for specialist industries and other industries which would benefit from a location in this area in accordance with Local Plan Policies ED6 and LS4.	As confirmed above, the Proposed Development is consistent with the land uses that are covered by Policy ED6. It is also in line with Policy LS4 as it will regenerate brownfield land, deliver CCS/CCUS infrastructure helping to decarbonise the local economy and create jobs and contribute toward improving the environmental quality of the area.
STDC6	South Tees Area SPD	Energy Innovation	The Council in partnership with STDC will promote and	The development of a project that involves power with carbon capture and CO_2 infrastructure to facilitate the transport and storage of power and industrial emissions is fully in accordance with STDC6. Furthermore,

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			support the development of new energy generation in the South Tees Area, including renewable energy development and the promotion of other innovative energy projects. All energy generation should be appropriately sited and designed in order to avoid unacceptable adverse environmental or amenity impacts.	the PCC Site involves land (within the NIZ) that is identified in the South Tees SPD (and the Teesworks Design Guide) for energy use. The EIA for the Proposed Development demonstrates that it will not result in unacceptable effects on amenity or the environment.
STDC7	South Tees Area SPD	Natural Environmental Protection and Enhancement	Seeks to protect and, where appropriate, enhance designated and non-designated sites of biodiversity and geodiversity interest and value. All development proposals will be required to comply with Local Plan	The ES/HRA confirms that the Proposed Development will not result in adverse effects on the integrity of European sites. Furthermore, that it will not result in unacceptable impacts on other nature conversation interests. The Proposed Development will not result in any permanent impact upon or loss of green infrastructure or open space. As confirmed above, it is proposed to use HDD techniques in locations such as Coatham Dunes/Sands for the installation of water connections and the CO_2 Export Pipeline in order to minimise impacts and disruption during construction. The Proposed Development also incorporates landscape and biodiversity enhancement proposals.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			Policy N4 which seeks to protect the internationally and national designated nature conservation sites within the area. The provision of green infrastructure will be supported in accordance with Local Plan Policy N2. Proposals will be required to have regard to forthcoming biodiversity and open space strategies.	
STDC8	South Tees Area SPD	Preserving Heritage Assets	The Council in partnership with STDC will seek to identify those industrial assets which it is appropriate and viable to retain as part of the development of an industrial heritage trail.	As confirmed above, there are limited heritage assets within the boundary of the Site. The Redcar Blast Furnace lies adjacent to the PCC Site and there is a WWI rifle range within the CO_2 export pipeline and water discharge (replacement outfall) connection corridors. These assets are not designated assets and are of medium value. The ES assesses the effects on the setting of the Blast Furnace as being neutral while appropriate mitigation is included within the Application in respect of the WWI rifle range (use of trenchless construction techniques).

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			Development proposals that will affect a designated or non-designated heritage asset or its setting should be in accordance with Local Plan Policy HE2.	
STDC10	South Tees Area SPD	Utilities	The development of new infrastructure relating to energy generation will be supported, including power generation facilities utilising both conventional and renewable resources and Carbon Capture and Storage ('CCS').	The Proposed Development is consistent with STDC10.
STDC11	South Tees Area SPD	North Industrial Zone	Will encourage development proposals relating to port related industry, major space users/large scale	The Proposed Development is appropriate in terms of the types of uses that are identified for the NIZ. The layout of the PCC Site is such that the main buildings and structures are set well back from the boundary, providing a buffer between then and South Gare and Coatham

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			manufacturing, energy innovation, power generation and storage , bulk materials and mineral processing. The potential for an open space recreation and heritage area within the North Industrial Zone ('NIZ') and incorporating the Redcar Blast Furnace is being explored. Development proposals should be in accordance with Local Plan Policy N4 and the requirements of the forthcoming biodiversity strategy, which will consider the need for a buffer zone to protect the existing environmental assets within and adjacent to the North Industrial	Dunes/Sands. The Proposed Development is also designed to mitigate the risk of flooding, which is low risk for the PCC Site in any case.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			Zone. Proposals should also take account of flood risk in accordance with Local Plan Policy SD7.	
STDC12	South Tees Area SPD	North East Industrial Zone	Will encourage development proposals relating to advanced manufacturing, research and development, testing and laboratory services and industrial and technology training. Proposals should accord with Local Plan Policies N4 and SD7.	The Proposed Development involves some connection within the North East Industrial Zone (water, electricity grid). The routing of these has sought to reduce any impact upon available land and emerging development proposals. Any impacts will be largely confined to the construction phase and temporary in nature.
STDC15	South Tees SPD	Coastal Community Zone	The Council in partnership with STDC will support proposals for environmental enhancement, small-scale leisure and community uses and	The Coastal Community Zone covers South Gare and Coatham Dunes/Sands. The Proposed Development requires the installation of the CO_2 Export Pipeline and a potential water discharge connection (replacement outfall) across this area. However, in order to minimise impacts and disruption during construction it is proposed to use HDD techniques.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			improved public access subject to compliance with Local Plan Policies N4, SD7 and HE2. Opportunities for renewable energy generation and energy storage will be explored.	
SD1	STBC Local Plan	Presumption in favour of Sustainable Development	When considering development proposals, the Council will take a positive approach reflecting the presumption in favour of sustainable development within the NPPF.	As confirmed above, the Proposed Development is consistent with the principles of sustainable development by reusing brownfield land and supporting the decarbonisation of power and industry on Teesside.
SD2	STBC Local Plan	Strategic Development Needs	In order to provide sufficient employment sites to meet existing needs and new investment the Policy allocates land for	The CO_2 Gathering Network and parts of the Gas Connection will cross areas of land that are identified for employment use. However, the routing largely follows existing pipeline corridors and as such there will be no material permanent impact on the availability of employment land in Stockton-on-Tees.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			employment, including 120 hectares for specialist uses, including the chemical and process industry, energy generation, waste processing, port-related uses and other uses, which demonstrate operational benefits to the North and South Tees Cluster.	
SD4	STBC Local Plan	Economic Growth Strategy	Economic development needs will be directed to appropriate locations to ensure the delivery of sustainable economic growth. The Policy states that The Seal Sands, North Tees and Billingham Chemical Complex areas are the main growth areas for a	The development of a CO_2 Gathering Network in this part of Stockton-on-Tees is consistent with Policy SD4 as it will provide the infrastructure for a number of industries in this area to transport their captured CO_2 emissions for secure storage offshore.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			range of specialist uses, including energy generation and carbon capture and storage, which have operational benefits for the cluster.	
SD5	STBC Local Plan	Natural, Built and Historic Environment	Seeks to conserve and enhance the natural, built and historic environment and meet the challenge of climate change, flooding and coastal change through a variety of methods, including supporting proposals for renewable and low carbon energy.	The Proposed Development involves low carbon energy and infrastructure to capture CO_2 emissions from industry. It will not result in unacceptable impacts on the natural or historic environment or increase the risk of flooding.
SD6	STBC Local Plan	Transport and Infrastructure Strategy	Seeks to promote and deliver a sustainable transport network.	A CTMP and a CWTP will be implemented during the construction phase to manage traffic and transportation effects. Any operational traffic will be negligible given that only the CO_2 Gathering Network and parts of the Gas Connection will be located within Stockton-on-Tees.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
SD7	STBC Local Plan	Sustainable Design Principles	Development proposals should be designed to the highest possible standard, taking into consideration the context if the surrounding area, including matters such as landscape character and the need to protect and enhance ecological and green infrastructure networks and assets. ng t.	The design of the Proposed Development is appropriate in terms of its context and setting, which is very much industrial, and it incorporates the principles of 'good design'. The elements of the Proposed Development within Stockton-on-Tees are limited to the CO_2 Gathering Network and parts of the Gas Connection. These will for the for the most part be installed below ground or upon existing pipe-racking and structures within existing infrastructure corridors. They also primarily cross existing or former industrial land. The connections will not therefore be highly visible, nor alter the use or character of the land to which they relate. The approach that has been taken to selecting the various connections corridors has been to maintain separation from and limit effects upon sensitive receptors such as residential properties and areas of amenity of nature conservation value and minimise as far as possible the crossings of roads, railways and watercourses.
EG4	STBC Local Plan	Seal Sands, North Tees and Billingham	Development proposals for emerging specialist sectors will be directed to available sites and expansion land in Billingham Chemical Complex, North Tees and Seal Sands. It will need to be demonstrated that development would	The CO_2 Gathering Network and parts of the Gas Connection corridors will cross areas of land that are identified by Policy EG4. However, the routing largely follows existing pipeline corridors and as such there will be no material permanent impact on the area of the availability of land for expansion or specialist sectors. There will be no adverse effects upon the integrity of the protected nature conservation sites.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			not adversely impact on the protected nature conservation sites within the area.	
EG5	STBC Local Plan	Durham Tees Valley Airport	Within the safeguarded area surrounding the Airport (identified on the Policies Map) it will be necessary to consult the operator of the Airport on relevant development proposals.	Due to the nature of the infrastructure within this area (pipelines) it is not considered that there are any implications for Durham Tees Valley Airport.
T11	STBC Local Plan	Transport Infrastructure	Seeks to promote and deliver a sustainable transport network. Requires development proposals to be accompanied by an assessment of transport impacts and promote the use of sustainable modes through travel plans.	As referred to above, a CTMP and a CWTP will be implemented during the construction phase to manage traffic and transportation effects. Any operational traffic will be negligible given that only the CO_2 Gathering Network and parts of the Gas Connection will be located within Stockton-on-Tees.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
ENV1	STBC Local Plan	Energy Efficiency	The Council will encourage all development to minimise the effects of climate change and will require all major development to demonstrate how it will contribute to the greenhouse gas emission reduction targets set out in the Stockton-on-Tees Climate Change Strategy 2016.	The Proposed Development will capture emissions from the Low Carbon Electricity Generating Station and provide infrastructure to assist in decarbonising industry on Teesside. It therefore has the potential to make a significant contribution toward the reduction in CO_2 emissions from current levels with a beneficial effect on annual UK carbon emissions.
ENV2	STBC Local Plan	Renewable and Low Carbon Energy Generation	The Council encourages and supports the local production of energy from renewable and low carbon sources to help reduce carbon emissions and contribute towards the achievement of	Refer to the response above in respect of Policy ENV1.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			renewable energy targets.	
ENV4	STBC Local Plan	Reducing and Mitigating Flood Risk	All new development will be directed toward the areas o lowest flood risk an where it is proposed in Flood Zones 2 and 3 it must satisfy the sequential and exception tests and be supported by a flood risk assessment demonstrating it will be safe and not increase the risk of flooding.	There are parts of the Site that lie within Flood Zones 2 and 3. However, the Proposed Development is 'Essential Infrastructure' and can be appropriate to those zones subject to satisfying the Exception Test. That test is satisfied on the basis that the Proposed Development will have very clear wider sustainability benefits to the community. It will contribute to the security of electricity supplies and provide infrastructure to decarbonise local industries while providing significant employment and economic benefits. Furthermore, the FRA demonstrates that the Proposed Development will be safe from the risk of flooding and will not increase the risk of flooding off-site.
ENV5	STBC Local Plan	Preserve, Protect and Enhance Ecological Networks, Biodiversity and Geodiversity	Seek to protect and enhance the biodiversity and geological resources within the Borough. This includes the protection, and where appropriate, enhancement of	The ES and HRA confirm that the Proposed Development will not result in adverse effects on the integrity of the European sites or on other nature conservation interests. The Proposed Development includes landscape and biodiversity enhancement measures.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			internationally designated nature conservation sites, nationally and locally designated sites. Development proposals should seek to achieve net gains in biodiversity wherever possible.	
ENV7	STBC Local Plan	Ground, Air, Water, Noise and Light Pollution	Development proposals that may cause pollution will be required to incorporate measures to prevent or reduce pollution so as not to cause unacceptable impacts on residential amenity or the character and appearance of the surrounding area of environment. Development will not be permitted if it is considered that it will	The EIA of the Proposed Development has considered its potential impacts in terms of air quality, noise and vibration, ground conditions, water and human health. Taking account of mitigation, the EIA has not identified any unacceptable impacts in respect of any of these assessment areas. The draft DCO includes a number of requirements that will secure various controls and measures to prevent any harmful effects. This includes securing the approval of a lighting strategy to control any potential sources of light pollution.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			result in unacceptable effect on human health or the environment.	
HE2	STBC Local Plan	Conserving and Enhancing Stockton's Heritage Assets	Development proposals should conserve and enhance heritage assets, including their setting, in a manner appropriate to their significance. This includes assets the Council has identified on a local listed, which are considered as having local heritage significance.	No designated heritage assets have been identified within Stockton-on-Tees. The CO_2 Gathering Network and the parts of the Gas Connection corridor in Stockton largely follow existing pipeline corridors that cross existing or former industrial land. As such, no significant heritage effects are predicted. The draft DCO includes a requirement to secure an archaeological Written Scheme of Investigation prior to construction.
MWC4	Minerals & Waste DPDs	Safeguarding of Mineral Resources from Sterilisation	Within minerals safeguarding areas, non-minerals development will only be permitted if it would not sterilise or prejudice future extraction of the	The Proposed Development will not sterilise local mineral resources (salt and gypsum). These mineral resources are present at depth below the PCC Site and parts of the connection corridors. Some of these areas, including the PCC Site already covered by existing industrial development. The Proposed Development does not therefore alter or preclude the ability to access these minerals for future extraction. Notwithstanding this, it is considered that the need for the Proposed

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
			resource; the mineral will be extracted prior to development; or the need for the development outweighs the need for the mineral resource.	Development and the benefits that it will bring outweigh any minerals considerations.
MWC8	Minerals & Waste DPDs	General Locations for Waste Management Sites	Allocations and development proposals for large waste management facilities should be located in areas such as south of the River Tees (e.g. around Teesport). In determining the suitability of sites within such areas, consideration will be given to the potential impact of the protected nature conservation sites.	The Proposed Development does not preclude waste management facilities from locating within the South Tees Area. The PCC Site occupies land that is identified for energy infrastructure in the South Tees SPD and specifically for the NZT Project in the Teesworks Design Guide. There is a significant amount of land available within the wider South Tees Area for other uses including waste management.

Policy No.	Policy Document	Policy Title	Summary of Policy	Assessment
MWC11	Minerals & Waste DPDs	Safeguarding of Port and Rail Facilities	Development which is proposed on or in the vicinity of certain safeguarded port and rail facilities (e.g. Tees Dock) will only be permitted where it would not prejudice the transportation of minerals and resources and waste materials by water and rail.	The nearest safeguarded facility to the Proposed Development is Tees Dock, located to the south-west of the PCC Site. The use of this facility for the movement and storage of minerals will not be prevented by the Proposed Development.

6.6.4 Table 6.4 demonstrates that there is no conflict between the Proposed Development and relevant polices contained within the DPD or the South Tees SPD.

6.7 Summary

6.7.1 This section of the Planning Statement has considered the Proposed Development's conformity against the assessment principles, generic impacts and assessment and technology specific considerations of the relevant energy NPSs (EN-1, EN-2, EN-4 and EN-5). These are the primary basis for the determination of development consent applications for energy infrastructure. The Applicants' assessment has not identified any conflicts with NPS policy. Furthermore, it has demonstrated that there is no conflict with NPPF policy, the statutory development plan or the South Tees SPD.

6.7.2 It is however important to recognise that although the NPPF and local development plan policy and supplementary planning guidance may be important and relevant, the energy NPSs are the primary consideration for the determination of the Application and take precedence where there is any conflict with such policies or guidance.

7.0 ASSESSMENT OF THE BENEFITS/ADVERSE EFFECTS OF THE PROPOSED DEVELOPMENT

7.1 Introduction

7.1.1 This section of the Planning Statement identifies the key benefits of the Proposed Development as well as its likely significant adverse effects/impacts having regard to the policy assessment within Section 6 and the EIA that has been undertaken.

7.2 Benefits of the Proposed Development

7.2.1 The Proposed Development will have a number of very clear and tangible benefits, which can be summarised as follows:

- The energy NPSs, in particular EN-1, confirm the urgent need that exists for developing new nationally significant energy infrastructure, including new gas-fired generating stations with carbon capture. The Proposed Development will provide dispatchable low carbon generating capacity that underpins the security of UK electricity supplies and overall grid stability as the deployment of intermittent renewables increases. EN-1 is clear that the Secretary of State ('SoS') should assess applications for development consent on the basis that the need for new energy infrastructure and its scale and urgency has been proven and that substantial weight should be given to the contribution that all projects will make toward satisfying this need. Although the Energy White Paper ('EWP') includes a commitment to review the current suite of energy NPSs, while that review is undertaken, they remain relevant Government policy for the purposes of making decisions on energy NSIPs. The EWP also underlines the need for the energy infrastructure set out in EN-1. The need that exists for the Proposed Development is set out in detail within the Need Statement (Document Ref. 5.2).
- Recent UK energy and climate change policy has established clear objectives for decarbonising the power and industrial sectors and the transformation of the oil and gas sector in order to achieve the Government's legally binding commitment to achieve net zero in terms of greenhouse gas emissions by 2050 while promoting economic growth and the development of new green industries. This policy is both *"important and relevant"* to decision-making in respect of the Proposed Development and should be afforded substantial weight. The Proposed Development will contribute to these objectives in a number of ways, including:
  - Demonstrating power with CCS/CCUS at a commercial scale by the mid-2020s which is aligned with the Government commitment to support the delivery of *"at least one power CCUS plant"* by 2030.
  - Developing a CO_2 gathering network on Teesside that will underpin the establishment of a decarbonised industrial cluster by the mid-2020s by providing the necessary infrastructure to capture CO_2 emission from existing heavy industries with the area, helping to secure their long-term future and contribution to the economy.

- Providing infrastructure that will support the potential for the future large-scale manufacture of low carbon hydrogen on Teesside, acting as a driver for growth and jobs within the local and regional economy. Gas reforming (the use of natural gas to manufacture hydrogen) is likely to be the cheapest source of hydrogen, at least initially, and therefore being able to pair this with CCS/CCUS is critical to delivering low carbon hydrogen production.
- The Proposed Development will initially capture up to 4Mt CO_2 emissions per annum (Teesside alone generates 3.9Mt CO_2 per annum) but there will be scope to increase this to 10Mt CO_2 per annum in the future.
- In line with the North Sea Deal, the Proposed Development will support the transformation of the oil and gas sector. The development of CCS/CCUS technologies will be able to draw upon the proven capabilities and skills within the oil and gas sector, its existing infrastructure and private investment potential, thereby helping to support its supply chain and skilled workforce.

- The Proposed Development will have substantial benefits for the local and regional economy in terms of employment (direct and indirect) and supply chain opportunities. It is estimated that up to 2,440 net construction jobs (direct and indirect) would be generated per annum over the 48-month construction programme. Jobs during operation are estimated at up to 130 FTE (direct and indirect) with the majority filled by people from the local area. An employment skills and training plan will be implemented in order to maximise the local employment and training opportunities provided by the Proposed Development.
- The Proposed Development will bring back into use previously developed industrial land on Teesside and make a positive contribute to the regeneration of Teesworks in accordance with local development plan policy, the South Tees SPD and the Teesworks Design Guide.
- The Proposed Development will be CHP Ready and have the future potential to provide emerging development within the Teesworks area with heat.
- The Proposed Development will also deliver landscape and biodiversity enhancements and achieve biodiversity net gain within the PCC Site.

7.3 Likely Significant Adverse Effects/Impacts of the Proposed Development

7.3.1 Chapter 25 'Summary of Significant Effects' of ES Volume I, Table 25-1 (Document Ref. 6.2) summarises the significant environmental effects of the Proposed Development that have been identified, following implementation of the embedded mitigation or impact avoidance measures included within the design of the Proposed Development (as detailed in Chapters 8 to 24 of the ES, where relevant). Table 25-1 also summarises any additional mitigation measures that have been identified in the technical assessments contained in the ES.

7.3.2 Table 25-1 confirms that the Proposed Development will only result in a limited number of long-term permanent and direct effects after mitigation. These relate to

a viewpoint from the England Coastal Path that runs adjacent to the PCC Site where there will be a moderate adverse (significant) effect in terms of visual impact on recreational users of the Coast Path from the presence of the buildings and structures at the PCC Site. The only other long-term, permanent, direct effect relates the employment generated by the Proposed Development during its operational stages, which is assessed as being a moderate beneficial (significant) effect.

7.3.3 Long-term, permanent and direct cumulative and combined effects are limited to a moderate adverse (significant) effect in terms of the visual impact on recreational users of the England Coast Path.

7.3.4 With regard to the visual impact on recreational users of the England Coast Path where it runs adjacent to the PCC Site, it is relevant to note that paragraph 2.65 of NPS EN-2 relating to fossil fuel electricity generation infrastructure, recognises that *"It is not possible to eliminate the visual impacts associated with a fossil fuel generating station."*

7.4 Summary

7.4.1 As with all development proposals, it is necessary to assess the Proposed Development in terms of its conformity and compliance with relevant policy and weigh the benefits and significant adverse effects against each other (the 'planning balance').

7.4.2 Section 6 of this Planning Statement has considered the Proposed Development's conformity against the assessment principles, generic impacts and assessment and technology specific considerations of the relevant energy NPSs (EN-1, EN-2, EN-4 and EN-5). These are the primary basis for the determination of development consent applications for energy infrastructure. The Applicants' assessment has not identified any conflicts with NPS policy. Furthermore, Section 6 has demonstrated that there is no conflict with NPPF policy, the statutory development plan or the South Tees SPD

7.4.3 The Applicants have also set out how the Proposed Development would contribute toward the objectives set out in recent UK energy and climate change policy to achieve the decarbonisation of the power and industrial sectors. That policy is both *"important and relevant"* to decision-making in respect of the Proposed Development and should be afforded substantial weight.

7.4.4 This section of the Planning Statement sets out the very clear and substantial benefits of the Proposed Development – responding to the need for new low carbon electricity generation capacity, contributing toward the delivery of energy and climate change policy, employment, and regeneration, amongst others. In contrast, the long-term, permanent and direct significant effects of the Proposed Development are limited to a moderate adverse effect on users of the England Coast Path where it runs adjacent to the PCC Site. This limited impact does not outweigh the substantial benefits of the Proposed Development and EN-2 recognises that it will not always be possible to eliminate the visual impacts of such infrastructure.

7.4.5 Therefore, given the urgency of the need for new electricity generation capacity (as set out in NPS EN-1) and the importance of decarbonising the power and industrial sectors in the UK to meet the legally binding target of Net Zero by 2050, it is considered that the benefits of the Proposed Development significantly outweigh the limited harm that would result from the effects identified above and that development consent should be granted.

8.0 CONCLUSIONS

8.1.1 The following conclusions can be drawn from this Planning Statement:

- There is an urgent 'need' for new dispatchable low carbon electricity generating capacity in the UK. That need is confirmed in NPS EN-1 and within recent UK energy and climate change policy. That need is not open to debate or interpretation and should be afford substantial weight in decision-making. Furthermore, the energy NPSs are the primary basis for the determination of development consent applications for energy infrastructure.
- Recent UK energy and climate change policy has established clear objectives for decarbonising the power and industrial sectors and the transformation of the oil and gas sector in order to achieve the Government's legally binding commitment to achieve Net Zero in terms of greenhouse gas emissions by 2050 while promoting economic growth and the development of new green industries. CCS/CCUS is an important component in delivering these objectives. This policy is both *"important and relevant"* to decision-making in respect of the Proposed Development and should also be afforded substantial weight.
- The Proposed Development will contribute toward the need for new low carbon generating capacity in the UK and the delivery of energy and climate change policy.
- Importantly, the Proposed Development will deliver the infrastructure to underpin the creation of a decarbonised industrial cluster on Teesside – in line with Government policy and the Industrial Decarbonisation Strategy.
- The Proposed Development has been assessed against the assessment principles, generic impacts and assessment and technology specific considerations of the relevant energy NPSs (EN-1, EN-2, EN-4 and EN-5), in addition to the NPPF, the statutory development plan and the South Tees SPD. The Applicants' assessment has not identified any conflicts with relevant policy. Furthermore, the Proposed Development is consistent with policy contained within the UK Marine Policy Statement and the North East Marine Plan, both of which are supportive of the deployment of CCS/CCUS in the UK Marine Area.
- In addition to contributing toward the need for new low carbon generating capacity and the delivery of important energy and climate change policy, the Proposed Development has a number of other very clear and substantial benefits, including employment and regeneration, amongst others.
- The significant adverse effects/impacts of the Proposed Development are limited to a moderate adverse effect on users of the England Coast Path where it runs adjacent to the PCC Site. This limited impact does not outweigh the substantial benefits of the Proposed Development and EN-2 recognises that it will not always be possible to eliminate the visual impacts of such infrastructure.

8.1.2 In summary, given the urgency of the need for new electricity generation capacity (as set out in NPS EN-1) and the importance of decarbonising the power and industrial sectors in the UK to meet the legally binding target of Net Zero by 2050, the Applicants consider that the benefits of the Proposed Development significantly outweigh the limited harm that would result from it proceeding and that development consent should be granted.

APPENDIX 1: SECTION 35 DIRECTION

Department for Business, Energy & Industrial Strategy

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By e-mail only: [redacted]@dwdllp.com

Your ref: 13626
Our ref:

17 January 2020

Dear Mr Bullock,

NET ZERO TEESSIDE PROJECT: REQUEST FOR DIRECTION UNDER SECTION 35 OF THE PLANNING ACT 2008

Thank you for your letter of 25 November 2019 to the Secretary of State on behalf of Oil and Gas Climate Initiative Climate Investment Holdings LLP ("the Applicant") requesting that she should exercise powers under section 35 of the Planning Act 2008 ("the Direction request") to direct that certain specified elements of the proposed Net Zero Teesside Project, as set out in the Direction request, should be treated as development for which development consent is required.

The Secretary of State requested supplementary information from the Applicant on 20 December 2019 to assist in deciding whether to give the Direction sought. Further information was received from the Applicant on 24 December 2019.

In light of the information contained in the Direction request and in the Applicant's supplementary information provided on 24 December 2019, I can confirm that the Secretary of State has agreed to the request for a Direction to be made. A signed Direction to that effect is attached. The Direction is given without prejudice to the Secretary of State's consideration of any application for development consent which is made in relation to the proposed Net Zero Teesside Project.

The Direction will be published on the Planning Inspectorate's web page for the Net Zero Teesside Project (or the "Teesside Cluster Carbon Capture and Usage Project" as is

currently displayed on the web-site). I will also arrange for publication of the Direction on the "Energy Infrastructure Development Applications: decision page" on the GOV.UK web-site[1].

Yours sincerely

GARETH LEIGH
Head of Energy Infrastructure Planning

[1] https://www.gov.uk/government/collections/energy-infrastructure-development-applications-decisions

DIRECTION BY THE SECRETARY OF STATE UNDER SECTION 35 OF THE PLANNING ACT 2008 RELATING TO THE PROPOSED NET ZERO TEESSIDE PROJECT

By letter to the Secretary of State for Business, Energy and Industrial Strategy received on 25 November 2019, Oil and Gas Climate Initiative Climate Investment Holdings LLP ("the Applicant") formally requested that the Secretary of State should exercise the power vested in her under section 35 of the Planning Act 2008 ("the Act") to direct that certain elements of the proposed Net Zero Teesside project ("the proposed Project") specified in the letter ("the Specified Elements") should be treated as development for which development consent under the Act is required. The Specified Elements of the proposed Project are:

- A CO_2 gathering network, including the CO_2 pipeline connections from the proposed Combined Cycle Gas Turbine electricity generating station and industrial facilities on Teesside to transport the captured CO_2 (including the connections under the tidal River Tees);

- A CO_2 gathering/booster station to receive captured CO_2 from the gathering network; and

- A CO_2 transport pipeline for the onward transport of the captured CO_2 to a suitable offshore geological storage site. [This does not include the complete connection to the offshore storage site itself.]

The Secretary of State requested supplementary information from the Applicant on 20 December 2019 to assist in deciding whether to give the Direction sought. Further information was received from the Applicant on 24 December 2019.

The Secretary of State is satisfied that:

- The proposed Project is in the field of energy and will be wholly within England or waters adjacent to England out to the seaward limits of the territorial sea;

- The Specified Elements of the proposed Project do not currently fall within the existing definition of a "nationally significant infrastructure project" as defined in the Act and it is, therefore, appropriate to consider use of the power in section 35 of the Act; and,

- The Applicant's request constitutes a "qualifying request" in accordance with section 35ZA (11) of the Act.

Having considered the details of the Applicant's proposals as set out in its letters of 25 November 2019 and 24 December 2019, the Secretary of State is of the view that the Specified Elements form part of the proposed Project which is nationally significant, for the reasons set out in the Annex below.

The Secretary of State has taken the decision within the conditions as required by sections 35A(2), (4) and (5) of the Act, and issues this Direction accordingly under sections 35(1) and 35ZA of the Act.

In deciding to issue this Direction, the Secretary of State considers that, while the Direction under section 35 of the Act in respect of the Specified Elements of the proposed Project is granted, it would only apply to the Specified Elements in so far as they form part of the Net Zero Teesside project which includes a generating station that is a nationally significant infrastructure project as defined in the Act and as described in the Applicant's letter of 25 November 2019.

THE SECRETARY OF STATE DIRECTS that, subject to the proviso in the preceding paragraph, the Specified Elements, together with any matters/development associated with them, are to be treated as development for which development consent is required.

The Secretary of State further directs in accordance with sections 35ZA(3)(b) and (5) of the Act that:

- an application for a consent or authorisation mentioned in section 33(1) or (2) of the Act for development identified in, or similar to that described in, the request to the Secretary of State for Business, Energy and Industrial Strategy for a Direction under Section 35 of the Planning Act 2008 made by Oil and Gas Climate Initiative Climate Investment Holdings LLP is to be treated as a proposed application for which development consent is required;

- the Overarching Policy Statement for Energy (EN-1) has effect in relation to an application for development consent under this Direction in a manner appropriately equivalent so far as the considerations and impacts described in EN-1 are relevant to the proposed Development.

This Direction is given without prejudice to the Secretary of State's consideration of any application for development consent which is made in relation to the proposed Project.

Signed by

[redacted]

Gareth Leigh
Head of Energy Infrastructure Planning
For and on behalf of the Secretary of State for Business, Energy and Industrial Strategy

17 January 2020

ANNEX

REASONS FOR THE DECISION TO ISSUE THE DIRECTION

The Secretary of State is of the opinion that the Direction should be issued because:

- the Specified Elements of the proposed Project when taken together with the other elements of the proposed Project as defined in the letter of 25 November 2019 are of national significance; and

- by progressing the proposed Project through the Planning Act 2008 development consent process, it would provide the certainty of a single, unified, consenting process for the whole project within fixed timescales.