

KEADBY 3 **CARBON CAPTURE POWER STATION**

A collaboration between **SSE Thermal** and **Equinor**

Document Ref: 10.5

Planning Inspectorate Ref: EN010114

The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order

Land at and in the vicinity of the Keadby Power Station site, Trentside, Keadby, North Lincolnshire

**Proposed Development Changes:
Rationale and Need Statement (Deadline
6a Version)**

The Planning Act 2008

Applicant: Keadby Generation Limited

Date: May 2022

DOCUMENT HISTORY

Document Ref	10.5		
Revision	VP2.0		
Author	CC, JM		
Signed	CC	Date	May 2022
Approved By	CT		
Signed	CT	Date	May 2022
Document Owner	DWD		

GLOSSARY

Abbreviation	Description
AGI	Above Ground Installation
AIL	Additional Abnormal Indivisible Load
CCGT	Combined Cycle Gas Turbine
CCP	Carbon Dioxide Capture Plant
CCUS	Carbon Capture, Usage and Storage
DCO	Development Consent Order
HP	High Pressure
ES	Environmental Statement
ExA	Examining Authority: An inspector or panel of inspectors appointed to examine the application
HRSG	Heat Recovery Steam Generator
MW	megawatts
NLC	North Lincolnshire Council
NSIP	Nationally Significant Infrastructure Project: for which a DCO is required
PA 2008	Planning Act 2008
PCC	Proposed Power and Carbon Capture
PINS	Planning Inspectorate
SoCG	Statement of Common Ground
SoS	Secretary of State

Abbreviation	Description
ZCH	Zero Carbon Humber

CONTENTS

1.0	Introduction and scope of rationale and need statement.....	4
1.1	Overview	4
1.2	Updates to UK Energy and Climate Change Policy.....	4
1.3	The Purpose and Structure of this Document and Version.....	6
2.0	Proposed Development Changes.....	8
2.1	Introduction.....	8
2.2	Description of Proposed Changes.....	8
2.3	Rationale for Proposed Development Changes	9
3.0	Need for proposed development changes	<u>1214</u>
3.1	Introduction.....	<u>1214</u>
4.0	Updates to the Assessment of the Proposed Development Against Policy;	<u>1619</u>
4.1	Assessment of Proposed Development Changes Against EN-1	<u>1619</u>
4.2	Assessment of Proposed Changes	<u>1922</u>
5.0	Updates to the Assessment of the Benefits and Adverse Impacts of the Proposed Development;.....	<u>2933</u>
5.1	Introduction.....	<u>2933</u>
5.2	Benefits of the Proposed Development Changes.....	<u>2933</u>
5.3	Adverse Effects of the Proposed Development Changes.....	<u>3135</u>
5.4	The Planning Balance	<u>3337</u>
6.0	Conclusion.....	<u>3438</u>

TABLES

Table 1: Main dimensions for up to two absorbers and carbon dioxide stripper* .	<u>1012</u>
Table 2.4	<u>2023</u>

1.0 INTRODUCTION AND SCOPE OF RATIONALE AND NEED STATEMENT

1.1 Overview

- 1.1.1 This Rationale Statement (**Application Document Ref. 10.5**) has been prepared on behalf of Keadby Generation Limited ('the Applicant'). 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 '2008 Act').
- 1.1.2 The Applicant is seeking development consent for the construction, operation and maintenance of a new low carbon Combined Cycle Gas Turbine (CCGT) Generating Station ('the Proposed Development') on land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe, DN17 3EF (the 'Proposed Development Site').
- 1.1.3 The Proposed Development is a new electricity generating station of up to 910 megawatts (MW) gross electrical output, equipped with carbon capture and compression plant and fuelled by natural gas, on land to the west of Keadby 1 Power Station and the (under commissioning) Keadby 2 Power Station, including connections for cooling water, electrical, gas and utilities, construction laydown areas and other associated development. It is described in Chapter 4: The Proposed Development of the Environmental Statement (ES) (ES Volume I – APP-047).
- 1.1.4 The Proposed Development falls within the definition of a 'Nationally Significant Infrastructure Project' (NSIP) under Section 14(1)(a) and Sections 15(1) and (2) of the 2008 Act, as it is an onshore generating station in England that would have a generating capacity greater than 50MW electrical output (50MWe). As such, a DCO application is required to authorise the Proposed Development in accordance with Section 31 of the 2008 Act.
- 1.1.5 The DCO, if made by the SoS, would be known as 'The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order' ('the Order').
- 1.1.6 Since the application was submitted, additional engineering and design studies have been completed, resulting in a number of Changes to the Project which form the Changes Application to be submitted on April 5th 2022.

1.2 Updates to UK Energy and Climate Change Policy

The Environment Bill

- 1.2.1 The Environment Bill, first introduced in draft form in December 2018, was approved by Parliament in 9 September 2021. The Environment Act 2021 (The

Stationary Office, 2021) sets out legislation to provide a post-Brexit environmental framework for the UK. As a summary, the Act includes new legislation such as: binding targets on air and water quality, biodiversity, and resource efficiency and waste reduction.

- 1.2.2 This Act was given Royal Assent after the submission of the Application. The Applicant understands that the majority of the Environment Act 2021 is not yet in force and that the Office for Environmental Protection (OEP) has been brought into effect but is yet to receive its enforcement powers in England that would apply to the Proposed Development. The Applicant will continue to monitor implementation of the Environment Act throughout the course of Examination and will consider the need for changes where they apply to policy or plans and their implementation, during the course of examination. Until any changes are made, extant legislation and policies remain in force.

UK Energy and Climate Change Policy

- 1.2.3 The Net Zero Strategy: Build Back Greener (HM Government, 2021) expands on key commitments in the Energy White Paper, proposing to deliver “four carbon capture usage and storage (CCUS) clusters, capturing 20-30 MtCO₂ across the economy, including 6 MtCO₂ of industrial emissions, per year by 2030”.
- 1.2.4 Alongside the Government’s Net Zero Strategy, the BEIS have announced the East Coast Cluster as one of two Clusters to participate as ‘Track-1 Clusters’.
- 1.2.5 Setting aside 6 MtCO₂ per year to be captured from industrial emissions this leaves a commitment of between 14-24 MTCO₂ per year to be captured from energy sources. The Proposed Development, to form part of the CCUS cluster in the Humber region will capture some 2 MTCO₂ per year. This means that the country needs between 7 and 12 Carbon Capture Power Stations of this size in order to meet the Government’s commitments, or approximately 2-3 within each CCUS cluster, by 2030. In conclusion the need case for the Proposed Development is greater as a result of the publication of the Net Zero Strategy.
- 1.2.6 Draft Revised National Policy Statements On 6 September 2021 the Department for Business, Energy & Industrial Strategy published revised draft energy National Policy Statements (EN1 to EN-5) for consultation. These do not constitute the relevant NPS (i.e. they do not have effect under Section 104(1) of the 2008 Act) but may potentially be important or relevant matters for consideration, pursuant to Section 104(2)(d).
- 1.2.7 Descriptions of how the draft policy relates to the Proposed Development Changes can be found in Section 4.0 of this Document.

Dispatchable Power Agreement (DPA)

- 1.2.8 The proposed business model for the generating station has been published in draft, see Section 3 of the Cluster Sequencing for Carbon Capture Usage and Storage Deployment: Phase-2 Report (2021). In addition, following successful evaluation and negotiation, the Keadby 3 Carbon Capture Power Station Project has qualified to receive a DPA (BEIS, 22 March 2022¹).

Other National Policy

- 1.2.9 The latest version of the National Planning Policy Framework was most recently updated in July 2021. There are not considered to be any material changes between the policy in the June 2019 version and this latest version of relevance to the Proposed Development.

Local Policy

- 1.2.10 The Regulation 19 Publication Draft has been issued and consultation concluded on 3 December 2021. The current expectations of the Spatial Planning Team regarding the publication of the adopted New Local Plan are December 2022 (at the earliest) to June 2023. In their Local Impact Report (REP1-022) North Lincolnshire Council state:

- 1.2.11 “The currently anticipated timeframe for adoption of the new Local Plan is 12-18 months and it is unlikely that the document will have been subject to formal examination prior to the expiry of the statutory 6 month examination period in respect of this application. As such it is considered that the emerging Local Plan is not a relevant consideration in the determination of this DCO application.”

- 1.2.12 North Lincolnshire Council do not regard the New Local Plan, at its current stage of adoption, to have relevance to the determination of the Proposed Development, which is evidenced in the Local Impact Report at paragraph 3.6.3 [REP1-022].

- 1.2.13 Guidance and Policy changes specific to the technical area and that effect the environmental assessment are discussed in the relevant technical chapter of this ES Addendum.

1.3 The Purpose and Structure of this Document and Version

- 1.3.1 The purpose of this document is to justify the need for the Proposed Development Changes to the Keadby 3 Carbon Capture Power Station, the

¹ <https://www.gov.uk/government/publications/cluster-sequencing-phase-2-eligible-projects-power-ccus-hydrogen-and-icc/cluster-sequencing-phase-2-eligible-projects-power-ccus-hydrogen-and-icc>

application for which ('the Change Request') this document is being submitted alongside at Deadline 6a of the examination.

- 1.3.2 The ExA's Response to Applicant's letter dated 1 February 2022 [PD-011] outlines that 'The 'Notification of Proposed Application for a Change' [REP2-014] provided a clear description of the proposed change and sets out the Applicant's rationale and pressing need for making the changes detailed in that document. However, the ExA also considered the proposed changes may give rise to new or materially different likely significant effects but did not at this time have sufficient information to reach an opinion in this regard.
- 1.3.3 Therefore, the ExA requested the "... *information detailed in items 3 to 7 (inclusive) as set out in Figure 3 of AN16*".
- 1.3.4 This document is submitted in support of criterion (b) of Figure 3 of Advice Note 16.
- 1.3.5 The remainder of this document is structured as follows:
- Proposed Development Changes;
 - Need for the Proposed Development Changes;
 - Updates to the Assessment of the Proposed Development Changes Against Policy;
 - Updates to the Assessment of the Benefits and Adverse Impacts of the Proposed Development; and
 - Conclusions.
- 1.3.1 The purpose of this version is to update, and completely supersede, the version of the same document that was submitted at Deadline 5 (**REP5-044**) in order to remove references to Change No. 2 (changes to the Additional AIL Route (Work No. 10A). Change No. 2 was withdrawn by the Applicant by letter modifying the Change Request (**REP6-018**).
- 1.3.2 At the time of writing the Examining Authority is minded to accept the Change Request (as submitted at Deadline 5 and modified at Deadline 6) (letter dated 29 April 2022, **PD-019**) but has requested in the same letter that all documents and plans comprising the Change Request are submitted, and/or resubmitted, by the Applicant in a single package at Deadline 6a.
- 1.3.3 It is anticipated that following receipt of this single package the ExA will exercise discretion to accept the Change Request and from this point the Proposed Development Changes (described in section 2 of this document) would form part of the Proposed Development for the remainder of the DCO examination.

2.0 PROPOSED DEVELOPMENT CHANGES

2.1 Introduction

2.1.1 The Applicant originally proposed and consulted on a total of five changes. Number 2 on the original list of changes is no longer used, having been withdrawn by letter (**REP6-018**). The changes that are hereby applied for will still be referred to as Change 1, 3, 4 and 5 for consistency. These are collectively known as the ‘Proposed Development Changes’ and are described as follows:

1. Inclusion of riverbed within the Waterborne Transport Offloading Area (Railway Wharf).
3. Increase to the maximum heights of the carbon dioxide absorbers/ stacks, if two are installed.
4. Increase to the maximum heights of the carbon dioxide stripper column.
5. Increase in proposed soil import volumes to create a suitable development platform.

2.2 Description of Proposed Changes

2.2.1 Since the submission of the Application, four changes have been identified through the ongoing design contractor involvement process that are required and hereby applied for as changes to the Application for the Proposed Development. These Proposed Development Changes are:

- Change 1 – a small increase to the Order Limits to provide additional space for safe mooring of the largest vessels delivering abnormal indivisible loads (AIL). This change involves:
 - inclusion of land within the River Trent (**Work No. 10C**) which will be required for the mooring of vessels at the Waterborne Transport Offloading Area (**Work No. 10B**);
- Change 3 - an increase to the maximum parameters (height) presented in Schedule 11 – Design Parameters of the draft DCO [**APP-005**] and **Chapter 4: The Proposed Development [APP-047] for Work No. 1C** for the twin absorber columns/ stack option in the event that this option is selected for the removal of CO₂ from flue gases within the carbon capture plant (CCP). The maximum height of the twin structures would be increased by up to 22m as shown in Table 1, noting that even at this increased height, the twin absorbers and associated stacks would still be lower in height than the proposed single absorber option and associated stack;

- Change 4 - an increase to the maximum parameters (height) presented in Schedule 11 – Design Parameters of the draft DCO [APP-005] and **Chapter 4: The Proposed Development [APP-047] for Work No. 1C** for the CO₂ stripper in the event that a single absorber is developed. This is required to allow an additional height of up to 10m for the stripper; and
- Change 5 – an increase of up to 50,000m³ of imported fill material, increasing the maximum proposed import volume for soil, as described in **Chapter 5: Construction Programme and Management (Application Document Ref. 6.2.5) [APP-048]**, to 180,000m³ to provide a suitable platform for foundations and buildings/ equipment across the Proposed Power and Carbon Capture (PCC) Site.

2.2.2 An explanation of the Proposed Changes can be found in Section 2.3 of the Environmental Statement Addendum Volume I (Document Ref.10.7)

2.3 Rationale for Proposed Development Changes

2.3.1 Further explanation of each of the Proposed Development changes is provided below and updates to Chapters 1-7 of the ES resulting from these changes are described in Section 4.0.

[Change 1 - Extension of Waterborne Transport Offloading Area to incorporate land within the River Trent](#)

2.3.2 An increase in the extent of land included in the Order Limits within the River Trent which would be utilised by delivery vessels is proposed in order to accommodate the largest (82m long) potential vessels, as used during the Keadby 2 Power Station construction. Where vessels are required to be moored for the full tide cycle, they could require use of the seabed, which is Crown Land and as such, it is intended to negotiate voluntarily for rights for this. The proposed Order Limits are presented in **Figure 3.1** and **Figure 3.2** of ES Addendum Volume III (**Application Document Ref. 6.4.2 – Rev 02** and **6.4.3 – Rev 02**). An updated Site Location Plan is presented as **Figure 1.1** of ES Addendum Volume III (**Application Document Ref. 6.4.1 – Rev 02**). The change does not involve any works of development and ensures that the revised Land Plans and Works Plans are consistent with the position described in our submitted Navigational Risk Assessment (Document Ref. 6.3.22) [APP-086]. The area is denoted as new Work No. 10C in the revised Works Plans.

2.3.3 Change 1 does not involve any works of development and ensures that the Land Plans (**Application Document Ref. 4.2**) and Works Plans (**Application Document Ref. 4.3**) are consistent with the position described in the submitted Navigational Risk Assessment [APP-086].

Change 3 - Increase to the maximum parameters (height) for up to two absorbers/ stacks

2.3.4 Ongoing engagement with the design contractors has identified that in the event that the option for up to two absorbers is required for the removal of CO₂ from flue gases within the CCP (**Work No. 1C**), the twin absorber units and stacks may have maximum dimensions up to 80m above ground level (AGL) for the absorber towers and up to 15.5m for the stacks i.e. up to 95.5m AGL, which equates to a maximum of 98.3m Above Ordnance Datum ('AOD') for each absorber and associated stack. The maximum dimensions established through ongoing design development are up to 22m higher than those previously assessed in the submitted ES for up to two absorbers/ stacks (denoted in italics in Table 1 below). This change is within the Order Limits (**Work No. 1C**).

Change 4 - Increase to the maximum parameters (height) for carbon dioxide stripper column

2.3.5 Ongoing design development with design contractors has also identified that the proposed CO₂ stripper column (also **Work No. 1C**) may have maximum dimensions up to 63m AGL which equates to a maximum of 65.8m AOD and which is 10m higher than was included as a parameter in the draft DCO submitted with the Application [**APP-005**]

2.3.6 ~~Table 2.1~~ **Table 2.1** sets out the updated parameters that have been assessed within this ES Addendum for up to two absorbers/ stacks and the CO₂ stripper. As both the twin absorbers and CO₂ stripper column are located within the Proposed PCC Site, these parameters take into account the expected revised minimum finished floor design level of +2.8m above ordnance datum (AOD) for CCP infrastructure within the Proposed PCC Site, as set out in **Appendix 12A: Flood Risk Assessment - Additional Submission - 6.3.20 ES [AS-010]** accepted by the Examining Authority.

Table 2.1: Main dimensions for up to two absorbers and carbon dioxide stripper*

Component	Length (m)	Width (m)	Height (m) AGL	Height (m) AOD
Minimum design level (final ground height) within 'Main Site' for CCGT/ CCP infrastructure (Work No. 1A/ 1C) and administration/ control buildings (Work No. 1E)	2.8m (2.6m)			

Absorbers (Work No. 1C) (in the case that two absorbers are developed)		19.0 – no change	Up to 80.0 (57.8)	82.8 (60.6)
Twin absorber stacks (Work No. 1C) (in the case that two absorbers are developed)		6.7 – no change	95.5 (75.8)	98.3 (78.6)
Carbon dioxide stripper (Work No. 1C)		15.0 – no change	63.0 (52.8)	65.8 (55.6)

*previously assessed in (*italics*)

2.3.7 Within the Rochdale Envelope of up to two absorber towers/ stacks, alternative configurations have been considered, but as this is a ‘First of a Kind’ project, in the event that up to two absorbers are required from an engineering/ constructability perspective, there are no reasonable alternatives that can be assessed. This change is within the Order Limits (**Work No. 1C**).

Change 5 - Increase in proposed soil import volumes

2.3.8 Ongoing design development and engagement with design contractors has identified that additional volumes of soil may need to be imported to provide a suitable platform for foundations and buildings/ equipment across the Proposed PCC Site, taking into account anticipated ground conditions and the revised finished floor level noted in Table 1 (revised from 2.6m AOD to up to 2.8m AOD). Up to 180,000m³ of soils may need to be imported representing an increase of 50,000m³ over the volume previously assessed in the ES. This change is within the Order Limits (**Work No. 1**).

3.0 NEED FOR PROPOSED DEVELOPMENT CHANGES

3.1 Introduction

- 3.1.1 The need for the Proposed Development Changes has been set out below in the context of the updated policy outlined in Section 1.3.
- 3.1.2 It is also noted that the Draft NPS do not constitute the relevant NPS (i.e. they do not have effect under Section 104(1) of the 2008 Act) but may potentially be important or relevant matters for consideration, pursuant to Section 104(2)(d).
- 3.1.3 The below text sets out the Need for the Proposed Development Changes in the context of NPS EN-1 and, where relevant, Draft NPS EN-1 as outlined in Section 6.2 of the Deadline 3 Planning Statement (Document Ref 10.7).
- 3.1.4 The potential alternatives to the Proposed Development Changes have been discussed in Chapter 6 of the ES Addendum Volume I (Document Ref. 10.7). The assessment concludes that there are no feasible alternatives to any of the five Proposed Changes.

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

- 3.1.5 Proposed Changes 3 and 4 constitute marginal changes to the maximum dimensions of the stack absorbers and carbon stripper respectively. The Proposed Changes assist with the efficient operation and functionality of the Keadby 3 Carbon Capture Power Station, which are key elements of good design as set out in this policy. The assessment of the Proposed Development in the context of NPS EN-1, 4.5; EN-2, 2.3.15-2.3.16; EN-4, 2.3 and EN-5, 2.5 remains unchanged to that outlined in Section 6.2 of the Deadline 3 Planning Statement [**REP3-006**].

[Consideration of combined heat and power \('CHP'\) \(NPS EN-1, 4.6; and EN-2, 2.3.2-2.3.3\)](#)

- 3.1.6 The Proposed Changes do not affect the space available for CHP or its viability and do not constitute any change to the assessment of the Proposed Development against (NPS EN-1, 4.6; and EN-2, 2.3.2-2.3.3 outlined in Section 6.2 of the Deadline 3 Planning Statement [**REP3-006**].

[Carbon Capture Readiness \('CCR'\) \(NPS EN-1, 4.7 and NPS EN-2, 2.3\)](#)

- 3.1.7 The Proposed Changes do not constitute any amendments to the assessment of the Proposed Development stated in Section 6.2 of the Deadline 3 Planning Statement [**REP3-006**]. It is noted that Proposed Change 3 and 4 are design changes that will assist in the efficiency of the Keadby 3 Power Station in capturing and removing carbon from flue gases as outlined in Section 2.3 of this Document thereby consistent with the principles in CCR policy.

[Grid connection \(NPS EN-1, 4.9; and EN-2, 2.2.10 - 2.2.11\)](#)

3.1.8 The Proposed Changes do constitute any change or impact on the grid connection. Therefore, the assessment of the Proposed Development against NPS EN-1, 4.9 and EN-2, 2.210-2.2.11 outlined in section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

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

3.1.9 The Proposed Changes numbered 1, 3 and 4 do not constitute any change to the assessment of the Proposed Development against NPS EN-1, 4.8; EN-2, 2.3.13-2.3.14, EN-4 2.2 and EN-5, 2.4 outlined in section 6.2 of the Deadline 3 Planning Statement (Document Ref. 10.7). Therefore, the assessment remains unchanged. Proposed Change 5 involves the creation of a slightly higher development platform, with benefits to climate change resilience, consistent with policy aims.

[Pollution control and other environmental regulatory regimes \(NPS EN-1, 4.10\)](#)

3.1.10 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.

3.1.11 The potential impacts of the Proposed Development changes on air quality, water quality, land quality or noise and vibration have been assessed in the respective chapters of the ES Addendum Volume I (Document Reference 10.7).

3.1.12 The findings conclude that there are likely no significant impacts that will arise from the Proposed Changes in relation to air quality, water quality, land quality or noise and vibration. The assessment of the Proposed Development against NPS EN-1, 4.10 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

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

3.1.13 The Proposed Changes do not constitute any change or impact on Safety or Control of Major Accidents.. The assessment of the Proposed Development against NPS EN-1, 4.11 and EN-4, 2.5 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

[Hazardous Substances \(NPS EN-1, 4.12 and EN-4, 2.4\)](#)

3.1.14 The Proposed Changes do constitute any change or impact on Hazardous Substances. Therefore, the assessment of the Proposed Development against NPS EN-1, 4.12 and EN-4, 2.4 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

Health (NPS EN-1, 4.13)

3.1.15 The Proposed Changes cause no adverse change or impact on health.. The assessment of the Proposed Development against NPS EN-1, 4.13 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

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

3.1.16 The Proposed Changes do not cause any change or impact relating to Common law nuisance and statutory nuisance. Therefore, the assessment of the Proposed Development against NPS EN-1, 4.14 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

Security considerations (NPS EN-1, 4.15)

3.1.17 The Proposed Changes do not constitute any change or impact relating to security considerations. Therefore, the assessment of the Proposed Development against NPS EN-1, 4.15 outlined in Section 6.2 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

Updates to Need Case

3.1.18 Section 3.1 of the EN-1 Overarching National Policy Statement for Energy outlines the need for NSIPs in order to meet the UK's energy objectives. Moreover, Paragraph 3.2.1 states that the need such infrastructure is urgent and that substantial weight should be given to the considerations of need by the Secretary of State when making a decision.

3.1.19 Paragraph 3.5.1-3.5.7 sets out the need to bring forward CCS Infrastructure over the coming decades. Alternatives to new CCS infrastructure have also been considered in Paragraphs 3.5.3-3.5.7. There do not appear to be any realistic alternatives to new CCS infrastructure for delivering net zero by 2050.

3.1.20 Section 4.3 provides guidance on the general considerations given to Health in the consent process. Paragraph 4.3.2 states that *“the ES should assess these effects for each element of the project, identifying any potential adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate. The impacts of more than one development may affect people simultaneously, so the applicant should consider the cumulative impact on health in the ES where appropriate”*.

3.1.21 Proposed Change 3 will improve the safety of the Proposed Development during operation by ensuring the development is efficient. The potential effects on Health and Safety of the Proposed Changes have been assessed in the Environmental Statement Addendum Volume I (Document Ref. 10.7).

3.1.22 The Proposed Changes have been assessed in accordance with paragraph 4.2.2 which states to consider the potential effects, including benefits, of a

proposal for a project, the applicant should set out information on the likely significant social and economic effects of the development, and show how any likely significant negative effects would be avoided, reduced, or mitigated. This information could include matters such as employment, equality, biodiversity net gain, community cohesion and well-being.

- 3.1.23 The Applicant has prepared Environmental Statement Addendum Volume I (Document Ref. 10.7) to scope in the potential impacts of the Proposed Changes on the surrounding environment during pre-construction, construction, operation and decommissioning of the project. An assessment of the evolution of potential impacts and proposed mitigation in light of the Proposed Changes can be found in Section 4.0.
- 3.1.24 Section 4.6 on the Draft EN-1 sets out the Criteria for Good Design for Energy and Infrastructure. Paragraph 4.6.1 explains, *“The visual appearance of a building, structure, or piece of infrastructure, and how it relates to the landscape it sits within, is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object - be it a building or other type of infrastructure - including fitness for purpose and sustainability, is equally important.”*
- 3.1.25 Proposed Change 3 notes that in the event that the option for up to two absorbers is required for the removal of carbon dioxide from flue gases within the CCP (**Work No. 1C**), the two stacks would be constructed at a maximum of 22m higher than those previously assessed. The Proposed Changes will significantly improve the design and efficiency of the Keadby 3 Power Station in the removal of carbon from flue gases.
- 3.1.26 Similarly, the basis of Change 4 relates to the ongoing design development in which design contractors have also identified that the proposed carbon dioxide (CO₂) stripper column (also **Work No. 1C**) may have maximum dimensions up to 63m AGL which equates to a maximum of 65.8m AOD and is 10m higher than was included as a parameter in the original draft DCO [**APP-005**]. The revised design specification will ensure the efficiency of the power station during operation, assisting with the removal of carbon dioxide from flue gases.
- 3.1.27 In summary the Proposed Development Changes provide a number of clear benefits of relevance, which improve the need case.

4.0 UPDATES TO THE ASSESSMENT OF THE PROPOSED DEVELOPMENT AGAINST POLICY;

4.1 Assessment of Proposed Development Changes Against EN-1

National Planning Statements

4.1.1 Section 4.1 of the Draft NPS EN-1 states the General Policies and Considerations for consent. Paragraph 4.1.3 states, “In considering any proposed development, in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account:

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

4.1.2 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.

4.1.3 The Proposed Development has been assessment in the context of NPS EN-1 in Section 6.2 of the Deadline 3 Planning Statement [REP3-006]. The headings relevant to the Proposed Development Changes have been listed below to allow assessment of the EN-1 Overarching National Policy Statement for the Proposed Development Changes specifically.

4.1.4 As required by EN-1, the ES Addendum for the Proposed Changes includes the following:

- An assessment of the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects for all stages of the Proposed Development, and also the measures envisaged for avoiding and mitigating any significant adverse effects. The approach taken to the assessment of environmental effects is set out at ES Addendum Volume I Chapter 2 'Assessment Methodology'. Furthermore, ES Addendum Volume I, Chapters 8 - 15 identify the likely significant effects of the Proposed Changes, the mitigation measures (where required) and the residual effects. The ES Addendum, in the assessment of effects, therefore, clearly distinguishes between the different stages of the Proposed Development and the impacts of the Proposed Changes.

- An explanation of the components of the Proposed Changes where it has not been possible to fix details in advance of the submission of the Application and where flexibility is required, and the approach that has been taken to assessing the effects that may result. In this respect, the Applicant has adopted the principles of the 'Rochdale Envelope' and has 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 Addendum Volume I. The approach that has been taken is explained at ES Volume I, Chapter 4: The Proposed Development. Proposed Changes 3 and 4 consist of material design changes to which the Rochdale Envelope has been applied. The details of the maximum 'worst case' dimensions and design parameters can be found in Section 2.2 of this document.

4.1.5 The effects of the Proposed Changes, along with any additional mitigation measures that would be applied to reduce the significance and magnitude of those effects, are summarised in the conclusion of the relevant chapters outline in the ES Addendum Volume I (Document Ref. 10.7)

[Environmental Statement \(EN-1, 4.2\)](#)

4.1.6 EN-1 (paragraph 4.2.1) states that proposed developments 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.

4.1.7 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.

4.1.8 The Deadline 5 Application includes an ES Addendum Volume II (Application Document Ref. 10.7). Prior to the preparation of the ES Addendum Volume II, the Applicant identified the Proposed Changes that would need to be reassessed in light of their potential environmental impacts.

[Habitats Regulations \(NPS EN-1, 4.3\)](#)

4.1.9 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.

4.1.10 The ES Addendum has reassessed the potential impacts of the Proposed Changes in respect of NPS EN-1, 4.3. It concludes that there are likely no significant impacts presented by the Proposed Changes. Therefore, the assessment of the Proposed Development remains the same as stated in Section 6.2 of the Deadline 3 Planning Statement [**REP3-006**].

Alternatives

4.1.11 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 Proposed Development 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.

4.1.12 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

4.1.13 Paragraph 6.1.1 of **Chapter 6: Alternatives** (ES Volume I) [**APP-049**] has been updated. This is to note that reasonable alternatives to the main elements of the Proposed Development, including the Proposed Development Changes set out in this ES Addendum, which the Applicant studied - and the main reasons for selecting options which resulted in the Proposed Development are also presented in this ES Addendum (Section 3.2).

4.1.14 The potential alternatives to Proposed Development Change 1 would involve restricting the size of the largest vessels that could be moored at Railway Wharf, which is likely to result in more construction being required on site and potentially more road transport movements of abnormal loads. Alternatives to

this Proposed Development Change have therefore not been considered further.

An alternative Additional AIL Route was considered (comprising Proposed Development Change No. 2) and consulted upon. This would have resulted in removal of vegetation that would have required compensation/ enhancement of affected vegetation but would otherwise have resulted in no material difference in significant adverse environmental effects compared to the Proposed Additional AIL Route which has already been assessed in the Application. Following internal discussions and considerations of the Proposed Development Changes, the Applicant withdrew Proposed Development Change No. 2 (Changes to the Additional Abnormal Indivisible Load Route) by letter dated 26 April 2022 (REP6-018).

- 4.1.15 In regard to Proposed Development Change 3, design development has established that the maximum height parameters for up to two absorber units and associated stacks needs to be increased by circa 20m. Therefore, in the event that up to two absorbers is proposed, there are no reasonable alternatives available.
- 4.1.16 In regard to Proposed Development Change 4, design development has established that the maximum height for the CO₂ stripper needs to be increased by up to 10m. It is therefore considered that there are no reasonable alternatives available.
- 4.1.17 In regard to Proposed Development Change 5, the updated Flood Risk Assessment (FRA) requires a minimum design level (final ground height) within 'Main Site' for CCGT/ CCP infrastructure (Work No. 1A/ 1C) and administration/ control buildings (Work No. 1E) of 2.8m AOD; an increase from 2.6m AOD. This will require an increase of 50,000m³ of imported soil over the volume previously assessed in the submitted ES. Given the additional land raising required for flood mitigation purposes, there are considered no viable alternatives available.

4.2 Assessment of Proposed Changes

- 4.2.1 The below table outlines any amendment to the assessment of the Proposed Changes in the context of the National Planning Statements EN-1, EN-2, EN-4 and EN-5.

Table 4.1: Updated Assessment of Generic Impacts

Generic Impact	Assessment of Proposed Changes	Emerging NPS
Air quality and emissions (EN-1, 5.2 and EN-2, 2.5)	Proposed Change 3 was scoped in as having potential effects on Air Quality. However, the assessment presented in Chapter 8 Air Quality of ES Addendum Volume II (Application Document Ref. 6.2.8) concludes that there are no likely significant changes to those submitted in the original Chapter 8 of the submitted ES [APP-051]. Therefore, the assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .
Biodiversity and geological conservation (EN-1, 5.3; EN-4 2.21; and EN-5, 2.7)	Section 4.5 of Draft EN-1 sets out certain expectations regarding Biodiversity Net Gain. Proposed Change 3 has been scoped in the revised assessment for biodiversity and nature conservation. The potential impacts of the Proposed Changes have been discussed in Chapter 11 of the Environmental Statement Addendum Volume II (Document Reference 10.8). The Biodiversity Net Gain metric has been updated, and has been resubmitted at	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .

Generic Impact	Assessment of Proposed Changes	Emerging NPS
	<p>this deadline (reported on within the Landscaping and Biodiversity Management and Enhancement Plan, Document Ref. 5.10) and has taken account of the Proposed Development Changes. Overall, there is no change to the conclusions of the biodiversity and nature conservation effects of the Proposed Development being not significant, as presented in Chapter 11: Biodiversity and Nature Conservation of ES Volume I (Application Document Ref. 6.2.8) [APP-051].</p>	
<p>Civil and military aviation and defence interests (EN-1, 5.4)</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>
<p>Dust, odour, artificial light, smoke and steam (EN-1, 5.6 and EN-2, 2.8)</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>
<p>Flood risk (EN-1, 5.7; EN-4, 2.2.2-2.2.3; and EN-5, 2.4.1)</p>	<p>The assessment presented in Chapter 12 of ES Addendum Volume II (Application Document Ref. 10.8) concludes that there are no likely significant changes to those submitted in the original Chapter 12 of the submitted ES [APP-051]. Therefore, the assessment remains the</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>

Generic Impact	Assessment of Proposed Changes	Emerging NPS
	same as outlined in the Planning Statement at Deadline 3 [REP3-006] .	
Historic environment (EN-1, 5.8)	Proposed Change 3 was scoped in as having potential effects on Cultural Heritage. The assessment presented in Chapter 12 of ES Addendum Volume II (Application Document Ref. 10.8) found that there is potential for the Proposed Changes to have potential effect on Cultural Heritage and below ground archaeological remains. The Desk-based Assessment presented in Appendix 15A of ES Volume II (Application Document Ref. 6.3.29) [APP-093] identified a high potential for encountering previously unrecorded archaeological remains. The extent of potential impacts and any additional proposed mitigation can be found in Chapter 12 of ES Addendum Volume II (Application Document Ref. 10.8).	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .
Landscape and Visual (EN-1, 5.9, EN-2, 2.6; EN-4, 2.21; and EN-5, 2.8)	Proposed Changes,3 and 4 were scoped in as having potential effects on Landscape and Visual. The assessment presented in Chapter 14 of ES Addendum Volume II (Application	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .

Generic Impact	Assessment of Proposed Changes	Emerging NPS
	<p>Document Ref. 10.8) concludes that although Proposed Changes 3 and 4 would involve changes in height, the impact on visual receptors would not be significant. There are no new significant effects during construction, operation or decommissioning identified. The full assessment of the Proposed Changes in the context of LVIA can be found in Chapter 14 of the submitted ES [APP-051]. The assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>	
<p>Land use including open space, green infrastructure and Green Belt (EN-1, 5.10)</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>	<p>The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>
<p>Noise and vibration (EN-1, 5.11; EN-2, 2.7; EN-4, 2.20; and EN-5, 2.9)</p>	<p>Proposed Change 3 was scoped in as having potential effects on Noise and Vibration However, the assessment presented in Chapter 9 of ES Addendum Volume II (Application Document Ref. 10.8) concluded that there are no likely significant changes to those submitted in the Chapter 9 of the submitted ES [APP-051].</p>	<p>Noise and vibration (EN-1, 5.11; EN-2, 2.7; EN-4, 2.20; and EN-5, 2.9)</p>

Generic Impact	Assessment of Proposed Changes	Emerging NPS
	Therefore, the assessment remains the same as outlined in the Planning Statement at Deadline [REP3-006] .	
Socio-economic (EN-1, 5.12)	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .	The Assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006] .
Traffic and transport (EN-1, 5.13; EN-2, 2.2.5-2.2.6)	<p>Proposed Change 5 was scoped in as having potential effects on Traffic and Transport.</p> <p>However, the assessment presented in Chapter 10 of ES Addendum Volume II (Application Document Ref. 10.8) concluded that there are no likely significant effects to those submitted in the Chapter 10 of the submitted ES [APP-051].</p> <p>Therefore, the assessment remains the same as outlined in the Planning Statement at Deadline 3 [REP3-006].</p>	

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- 4.2.2 Paragraph 5 of the NPPF explains that it may be considered to be a matter that is relevant for the purposes of assessing DCO applications. The EIA and other studies and designs undertaken for the Proposed Development will therefore have regard to the relevant policies of the NPPF as part of the overall framework of national policy.
- 4.2.3 The Proposed Development was assessed against the relevant Policies within the NPPF in Section 6.6 of the Deadline 3 Planning Statement [REP3-006]. The table below has been amended to note any changes in the assessment of the Proposed Changes in the context of the NPPF.

Local Planning Policy

- 4.2.4 The Local Planning Policy was assessed in Section 6.6 of the Deadline 3 Planning Statement [REP3-006]. In light of the Proposed Development Changes, potential impacts on relevant themes have been reassessed in the context of Local Planning Policy below.

Landscape and Visual

- 4.2.5 Policy LC7 (Landscape Protection) of the Local Plan has been assessed against the Proposed Development in the Deadline 3 Planning Statement [REP3-006]. In light of the Proposed Development Changes, the landscape and visual impacts have been assessed in the ES Addendum Vol. I Chapter 14: Landscape and Visual Amenity (Document Ref. 10.8).
- 4.2.6 Proposed Development Changes 3 and 4 have therefore been considered within the revised assessment for landscape and visual amenity at the Proposed Development Site.
- 4.2.7 It is anticipated that Proposed Development Changes 3 would result in a marginal increase in the massing of tall structures with no change in the overall nature of views for identified representative viewpoints. Additionally, it is anticipated that the visibility of the plumes for the twin absorbers columns/ stacks would be similar to the single plume assessed within **Chapter 14: Landscape and Visual Amenity** of ES Volume I (Application Document Ref. 6.2.14) [APP-057] with reference to **Appendix 8B: Air Quality Operational Phase** of ES Volume II (Application Document Ref. 6.3.6) [APP-070]. An average plume length of less than 4m would be predicted to be visible for up to 3% of the time.
- 4.2.8 Whilst Proposed Development Change 4 would result in the marginal increase in the height of the carbon stripper column, it is judged that the Proposed Development change would not increase the level of impact on receptors in comparison to the that assessed within **Chapter 14: Landscape and Visual Amenity** of ES Volume I (Application Document Ref. 6.2.14) [APP-057], since the stripper is not the largest structure within the Proposed Development.

4.2.9 There would be no change to the level of significance during the operation phase on landscape receptors, visual receptors and dynamic views as a result of the Proposed Development change in comparison with Chapter 14: Landscape and Visual Amenity of ES Volume I (Application Document Ref. 6.2.14) [APP-057].

4.2.10 Therefore, the assessment of the Proposed Development against Policy LC7 (Landscape Protection) as outlined in section 6.6 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

Historic Environment

4.2.11 Policy CS6 (Historic Environment) of the Local Plan has been assessed against the Proposed Development in the Deadline 3 Planning Statement [REP3-006]. In light of the Proposed Development Changes, the potential impacts on Historic Environment and Cultural Heritage have been assessed in the ES Addendum Vol. I Chapter 15: Cultural Heritage (Document Ref. 10.8).

4.2.12 Proposed Development Change 3 has therefore been considered within the revised assessment for cultural heritage at the Proposed Development Site.

4.2.13 Due to the maximum height increase detailed in Proposed Development Change 3, the Proposed Development changes therefore has the potential to change the setting of designated and non-designated heritage assets.

4.2.14 A review of the impact assessment for all assets within **Chapter 15: Cultural Heritage** of ES Volume I (Application Document Ref. 6.2.15) [APP-058] has been undertaken. Updated photomontages have also been produced to demonstrate the change and these are available as Figure 14.25-14.30. No new significant effects to designated and non-designated built heritage assets have been identified as a result of Proposed Development Change 3, as no change has been identified to any of the assessed magnitudes of impact as a result of the change.

4.2.15 The only significant effect identified in **Chapter 15: Cultural Heritage** of ES Volume I (Application Document Ref. 6.2.15) [APP-058] as a result of setting, was to the Isle of Axholme Area of Special Historic Landscape Interest (locally designated), asset of high value where a moderate adverse effect was identified. This was due to the presence of the Proposed Development in views from within the landscape and through the erection of a permanent security gatehouse and associated parking area off the A18. Figure 14.30 presents a photomontage demonstrating the Proposed Development change. However, the change is considered to be no worse than the worst-case single absorber option that was assessed in the submitted ES.

4.2.16 Therefore, the assessment of the Proposed Development against Policy CS6 (Historic Environment) as outlined in section 6.6 of the Deadline 3 Planning Statement [REP3-006] remains unchanged.

Traffic and Transport

- 4.2.17 Policy T24 (Road Freight) of the Local Plan has been assessed against the Proposed Development in the Deadline 3 Planning Statement [REP3-006]. In light of the Proposed Development Changes, the potential impacts on Traffic and Transport have been assessed in the ES Addendum Vol. I Chapter 10: Traffic and Transportation (Document Ref. 10.8)
- 4.2.18 Proposed Development Change 5 has therefore been considered within the revised assessment for traffic and transportation at the Proposed Development Site.
- 4.2.19 The potential affects arising from the relevant Proposed Development Changes are considered to be during the construction phase. There are no anticipated affects regarding traffic and transportation during the operation or decommissioning phases.
- 4.2.20 Proposed Change 5 results in the importing of an additional 50,000 m³ of material during the enabling phase. This then increases the number of HGVs during this phase to 784 two way (392 in and 392 out) per day, which is an increase of 160 two way per day. However, this does not change the peak month of construction traffic as assessed within the ES Chapter 10, which assessed in the region of 400 additional vehicle movements on the local network. Therefore, based on the Rochdale Envelope assessed, there are no new or different significant construction effects to traffic and transportation as a result of the Proposed Development change, in comparison with **Chapter 10: Traffic and Transportation of ES Volume I (Application Document Ref. 6.2.10) [APP-053]**.
- 4.2.21 As a result, the assessment of the Proposed Development against Policy T24 of the Local Plan as outlined in section 6.6 of the Deadline 3 Planning Statement [REP3-006].

Regulation 19 Publication Draft Local Plan

- 4.2.22 It is noted that the Regulation 19 Publication Draft has been issued and consultation concluded on 3 December 2021. The current expectations of the Spatial Planning Team regarding the publication of the adopted New Local Plan are December 2022 (at the earliest) to June 2023
- 4.2.23 However, North Lincolnshire Council do not regard the New Local Plan, at its current stage of adoption, to have relevance to the determination of the Proposed Development, which is evidenced in the Local Impact Report at paragraph 3.6.3 [REP1-022].
- 4.2.24 It remains that the Proposed Changes do no alter the assessment of Local Planning Policy outlined in Section 5.3 of the Deadline 3 Planning Statement [REP3-006].
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Other National Planning Policy

4.2.25 The latest version of the National Planning Policy Framework was most recently updated in July 2021. There are not considered to be any material changes between the policy in the June 2019 version and this latest version of relevance to the Proposed Development Changes.

4.2.26 Therefore, the assessment of the Proposed Development remains unchanged as outline in Section 5.0 of the Deadline 3 Planning Statement [REP3-006] in light of the Proposed Development Changes.

5.0 UPDATES TO THE ASSESSMENT OF THE BENEFITS AND ADVERSE IMPACTS OF THE PROPOSED DEVELOPMENT;

5.1 Introduction

5.1.1 This section of this Rationale and Need Statement provides an update to the key elements of the key benefits and adverse effects identified in section 7.3 of the Deadline 3 Planning Statement [**REP3-006**], in light of the Proposed Development Changes.

5.2 Benefits of the Proposed Development Changes

5.2.1 Section 7.2 of Deadline 3 Planning Statement [**REP3-006**] identified several benefits of the Proposed Development. The below benefits listed below have been updated in light of the Proposed Development Changes.

- The Proposed Development is a major investment by the Applicant in low carbon electricity generation and could be deployed by the mid 2020s, providing 910MW (gross capacity) of dispatchable generation for 25 years or more, a significant contribution towards the urgent national need for low carbon electricity generation established in NPS EN-1 paragraph 3.3.15 and which has become more urgent following the coming into law of the Climate Change Act 2008 (2050 Target Amendment) Order 2019, i.e. Net Zero by 2050, and is corroborated by recent official evidence including the National Infrastructure Assessment (The National Infrastructure Commission, 2018), and Reducing UK emissions: 2020 Progress Report to Parliament (Committee for Climate Change, 2020). The necessity for the Proposed Development remains urgent as the national need for low carbon electricity has not been changed. Updated UK Energy and Climate Change Policy has been identified in section 1.2 of this Rationale and Need Statement providing further support for the Proposed Development. It is also noted that since the submission of the DCO, BEIS have announced the East Coast Cluster as one of two Clusters to participate as ‘Track-1 Clusters’.
- The Proposed Development would connect into and act as an important enabler of the Zero Carbon Humber cluster, and would help deliver Government policies and commitments on CCUS and “Superplaces” set out in the EWP (HM Government, 2020a), and Point 8 of the Ten Point Plan for a Green Industrial Revolution (HM Government, 2020b) where renewable energy, CCUS and hydrogen technologies could agglomerate and generate significant numbers of jobs. The Proposed Development Changes do not propose any changes to the generation or distribution of jobs generated by the Proposed Development. Therefore, the Proposed Development Change has no effect on the benefit above as, assessed in Section 7.2 of Deadline 3 Planning Statement [**REP3-006**].

- The Proposed Development represents a considerable commitment to removing barriers to carbon capture, and deploying carbon capture and compression infrastructure, and exceeds relevant policy requirements (NPS EN-1 section 4.7 and NPS EN-2 section 2.3). Carbon capture and compression equipment would be installed from the outset on all of the generating capacity, with relevant matters secured by requirements in Schedule 2 of the Draft DCO and further controlled under the Environmental Permit that will be obtained for the Proposed Development. The Proposed Changes 3 and 4 are required design amendments necessary for the successful operation of the Proposed Development, particularly in the capture and storage of carbon. The potential impacts of these changes have been discussed in the context of the NPS and reassessed (where necessary) in the ES Addendum Vol. I (Document Ref. 10.5). The findings conclude that no potential impacts are identified as significant. Therefore, the Proposed Development Changes would have no impact on this benefit.
- The site has excellent proximity to the Humber estuary and will connect into the Zero Carbon Humber CCUS cluster. Large parts of the Site are within the ownership or control of the Applicant and the generating station would be situated on brownfield land adjoining and within an existing power station with existing electricity grid, gas supply, and cooling water supply Document Ref: 5.5 Planning Statement February 2022 Page 264 infrastructure, thereby minimising the need for new connections and third party land. The location affords important efficiencies in terms of the operation and maintenance of the Proposed Development, also potentially reducing land and staffing (trip generation) compared to a development not situated at an existing power station. In light of the Proposed Development Changes, the Proposed Development retains all the benefits listed above in regard to its location, land ownership and existing infrastructure. Proposed Development Change 1 will further make use of the location of the Site by increasing the extent of land included in the Order Limits within the River Trent. This change would significantly improve and simplify the construction phase of the Proposed Development, allowing the River to be used by the largest (82m long) potential delivery vessels, as used during the Keadby 2 Power Station construction phase. Therefore, the Proposed Development Change would provide increased benefits than previously assessed in Section 7.2 of Deadline 3 Planning Statement [REP3-006].
- The parameters assessed in the ES and secured in the Draft DCO provide an appropriate degree of flexibility, allowing for the future connection to the ZCH cluster and allowing for unforeseeable technological advancements and efficiencies to be incorporated in the final design. This is of relevance both to the CCGT (Work No. 1A), which historically have gained in efficiency electrical output for a given fuel input) year on year) and other components such as the Carbon Capture Plant (Work No. 1C) where the licensor and technology choice would be made post consent. A seven year duration of planning powers, as provided for in requirement 2 in Schedule 2 of the Draft

DCO, strikes the appropriate balance of preserving viability and encouraging timely commencement of development. The Proposed Development Changes have no effect on the benefits of flexibility listed above.

- Significant beneficial local and regional impacts would result from the direct, indirect and induced employment created by the construction phase of the Proposed Development on the Scunthorpe Travel to Work Area (TTWA) and associated economy, as identified in Chapter 16: Socio-economics of the ES Volume II (Application Document Ref. 6.2). As stated previously, the Proposed Development Changes do not propose any changes to direct or indirect employment during the construction phase. Therefore, the Proposed Development Change would provide increased benefits than previously assessed in Section 7.2 of Deadline 3 Planning Statement [REP3-006].

5.3 Adverse Effects of the Proposed Development Changes

5.3.1 Section 7.0 of Deadline 3 Planning Statement [REP3-006] small number of unavoidable adverse effects of significance, as identified in Chapter 20: Summary of Likely Residual Effects of ES Volume I (Application Document Ref. 6.2). These adverse effects have been updated in light of the Proposed Development Changes below.

- During construction, and during operation and decommissioning in the event that the Keadby 1 power station structures are not present, there would be moderate or major adverse visual amenity effects for residents at Viewpoint 1 (Chapel Lane West, Keadby), Viewpoint 2 (Gate Keepers Residence, Vazon Bridge, Keadby) and users of the canal and towpath at viewpoint 2. In the event that Keadby 1 structures are still present, then during operation and decommissioning there would be adverse visual amenity effects on residents at viewpoint 6 (Truck Road, Keadby) during operation. These are considered unavoidable due to the scale of the required structures. Full mitigation is not possible. The Landscape and Biodiversity Management and Enhancement Plan (LBMEP) (Application Document Ref. 5.10) accompanies the DCO application which presents proposals for planting, although such planting would not reduce the significance of visual effects at these locations. The Design Principles Statement, in Appendix 1 of the Design and Access Statement (Application Document Ref. 5.6), sets out potential additional measures that could be undertaken by the Applicant in relation to colour and materials of the generating station (Work No. 1) as well as Work No. 8, and compliance is secured by Requirement 5 in Schedule 2 of the Draft DCO. The Proposed Development Changes will have no effect on the visual amenity impacts. The potential for additional visual impacts as a result of the Proposed Development Changes has been assessed in ES Addendum Volume I: Chapter 14 (Document Ref. 10.8). The potential impacts have also been

assessed in the context of Local and National Planning Policy in section 4.0 of this Rationale and Need Statement.

- The Proposed Development is located in open countryside and parts of the temporary works (parts of Work No. 9A) are located on higher grades of agricultural land. While this is not precluded by NPS policy, local policy sets criteria for the development of such land, and this could be important and relevant in decision making under S104 of the 2008 Act. However as demonstrated in Section 6 of this Planning Statement, the Proposed Development is consistent with these criteria, as it constitutes a form of economic development at an existing established employment site, it would be unsuitable within the development boundaries of North Lincolnshire's towns, and it will be located largely on previously used land and making use of existing structures and infrastructure, consistent with the NLC spatial strategy policy on rural development. It is located in an area already characterised by substantial power infrastructure including overhead lines and will not be out of keeping with the character of the area. Appropriate controls have been included, notably the maximum dimensions of larger structures, and the gatehouse adjoining the A18, being controlled via Schedule 11 of the Draft DCO (Application Document Ref. 2.1). In addition, screening and landscaping proposals are set out in a Landscape and Biodiversity Management and Enhancement Plan ('LBMEP') (Application Document Ref. 5.10). The Design and Access Statement (Application Document Ref. 5.6) includes design principles and explains how the use of greenfield and agricultural land for temporary construction purposes was minimised through a selection process that maximised the use of brownfield land. A Soil Resources Survey will be covered in the final CEMP, as controlled by Requirement 17 of Schedule 2 of the draft DCO (Application Document Ref. 2.1). The Proposed Development Changes have no affect on this adverse effect.
- The Proposed Development is located in Flood Zone 3 (fluvial flood risk). However, the flood defences are sufficient to prevent overtopping during events with a 0.5% annual probability, the overall sensitivity to fluvial flooding is therefore considered 'Low'. The location comprises largely previously developed land and the Proposed Development provides extensive wider sustainability benefits due to its role in providing high amounts of low carbon electricity generation consistent with the urgent need identified in NPS EN-1 paragraph 3.3.15 and which is corroborated by recent policy in the EWP and recent official evidence from the CCC and NIC. The Proposed Development therefore satisfies the Exception Test, with ES Volume I Chapter 12, (Water Environment and Flood Risk) (Application Document Ref. 6.2.12) and ES Volume II Appendix 12A: Flood Risk Assessment (Application Document Ref. 6.3.20) demonstrating that it would be safe and not result in significant effects in terms of flooding. The EA has reviewed the Flood Risk Assessment at various stages pre-application. The Proposed Development Changes are not assessed to have

any impact on this adverse effect. The impacts of the Proposed Development on Water Environment and Flood Risk have been assessed in ES Addendum Vol. I: Chapter 12 (Document Ref. 10.8)

5.4 The Planning Balance

- 5.4.1 This section has provided an update on the substantial benefits provided by the Proposed Development in light of the Proposed Development Changes. The NPS EN-1 and NPS EN-2 identifies that many of these types of benefit are to be given substantial weight. The benefits are appropriately secured in the DCO.
- 5.4.2 In contrast, few significant adverse effects have been identified which are unavoidable and arise due to the scale of the Proposed Development, which its electricity generation and carbon capture functions render inevitable, and the low-lying nature of the Site.
- 5.4.3 The suitability of the Site is clear given that it is to be served by a carbon capture gathering network being developed by National Grid Carbon, has a range of existing grid and infrastructure connections available, and large parts are of brownfield and industrial character and in the ownership of the Applicant.
- 5.4.4 It is therefore considered that the benefits of the Proposed Development considerably outweigh its limited adverse impacts.

6.0 Conclusion

- 6.1.1 Decisions on DCO applications where a National Policy Statement (NPS) is designated are made against the criteria in Section 104 of the 2008 Act. Section 8 sets out conclusions corresponding to the criteria in Section 104 subsection (2)(a)-(d) and subsections (3)-(9).
- 6.1.2 The Proposed Development Changes numbered 1, 3, 4, and 5 have been demonstrated, in Section 4 to be in conformity with the relevant NPSs. In particular:
- the need case set out in NPS EN-1 for all types of energy infrastructure, including low carbon electricity generating infrastructure, has been demonstrated to be of particular urgency and relevance by reference to a range of recent Government energy and climate change law, policy and guidance. The Proposed Development will contribute in a timely manner to this urgent need;
 - the Proposed Development is in conformity with all relevant ‘generic impacts’ and ‘assessment and technology specific considerations’ in the NPSs, as detailed in Section 4, and Table 4.2, including in respect of air quality and emissions, biodiversity and geological conservation, sources of potential nuisance, flood risk, historic environment, landscape and visual, land use, noise and vibration, socio-economic, traffic and transport, waste management, water quality and resources, site selection, pipeline safety, soil and geology, and EMFs, by reference to the original assessment of the Proposed Development outlined in section 6 of the Deadline 3 Planning Statement [REP3-006].
 - The conformity with the UK Marine Policy Statement and the East Inshore and East Offshore Marine Plans remains unchanged from the assessment in Table 6.4 of the Deadline 3 Planning Statement [REP3-006].
- 6.1.3 Other matters important and relevant to the acceptability of the Proposed Development include the overarching aims of the National Planning Policy Framework and the Local Plan. Section 4 also confirms that the Proposed Development Changes appropriately addresses these matters.
- 6.1.4 It is important and relevant that the Proposed Development would connect into the Zero Carbon Humber cluster, and the delivery of Government policies and commitments on CCUS and “Superplaces” set out in the EWP (HM Government, 2020a), and Point 8 of the Ten Point Plan for a Green Industrial Revolution (HM Government, 2020b) where renewable energy, CCUS and hydrogen technologies could agglomerate and generate significant numbers of jobs.
- 6.1.5 No other laws, statutory duties or enactments indicate against making the DCO. The Habitats Regulations Assessment Screening Report (Application

Document Ref. 5.21), Water Framework Directive Assessment (Application Document Ref. 6.3.21), PINS Transboundary Screening Matrix (Application Document Ref. 6.3.4) do not present concerns. The Statement of Reasons (Application Document Ref. 3.2) demonstrates that all reasonable alternatives to compulsory acquisition have been explored, and the proposed interference with the rights of those with an interest in the Order Land is necessary, proportionate and legitimate. No serious detriment to statutory undertakers would arise and appropriate protective provisions are included in the Order.

- 6.1.6 The Proposed Development Changes have a number of clear and substantial benefits, which NPS EN-1 accords weight, and which considerably outweigh its limited adverse impacts, as set out in Section 5.
- 6.1.7 The DCO includes appropriate requirements (Schedule 2) and conditions in the Deemed Marine Licence (Schedule 13) that would control the detailed design of the Proposed Development Changes and its construction and operation in order to ensure that it accords with the robust assessment reported in the ES Addendum Vol. I (Document Ref. 10.8) and would not result in unacceptable effects.
- 6.1.8 It is considered that the Proposed Development Changes conform with the criteria in Section 104 of the 2008 Act and is acceptable in all relevant respects, and the changes should therefore be accepted as part of the DCO.