KEADBY 3
CARBON CAPTURE
POWER STATION

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

Document Ref. 9.4

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

Applicant's Comments on Local Impact Report

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Applicant: Keadby Generation Limited

Date: February 2022

DOCUMENT HISTORY

Document Ref	9.4		
Revision	1.0		
Author	DWD, AECOM, SSE		
Signed		**Date**	February 2022
Approved By			
Signed		**Date**	February 2022
Document Owner	DWD		

GLOSSARY

Abbreviation	Description
2008 Act	The Planning Act 2008
AGI	Above Ground Installation
AIL	Additional Abnormal Indivisible Load
Applicant	Keadby Generation Limited
Application	the application
CCGT	Combined Cycle Gas Turbine () (‘’) on I (the ‘’)
DCO	Development Consent Order
ES	Environmental Statement
ExA's	Examining Authority's
HRSG	Heat Recovery Steam Generator
LIR	Local Impact Report
LPA	Local Planning Authority
NLC	North Lincolnshire Council
NSIP	Nationally Significant Infrastructure Project
Order	The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order
Proposed Development	Generating Station
Proposed Development Site	Land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe, DN17 3EF
SoCG	Statement of Common Ground
SoS	Secretary of State

CONTENTS

TABLES

1.0 INTRODUCTION

1.1 Overview

1.1.1 This 'Applicant's Comments on the Local Impact Report' document (**Application Document Ref. 9.4**) has been prepared on behalf of Keadby Generation Limited ('the Applicant') which is a wholly owned subsidiary of SSE plc. 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').

1.2 The Proposed Development

1.2.1 The Proposed Development will work by capturing carbon dioxide emissions from the gas-fired power station and connecting into the Humber Low Carbon Pipelines project pipeline network, being promoted by NGCL, for onward transportation to the Endurance storage site under the North Sea.

1.2.2 The Proposed Development would comprise a low carbon gas fired power station with a gross electrical output capacity of up to 910MWe and associated buildings, structures and plant and other associated development defined in Schedule 1 of the draft DCO (APP-005) as Work No. 1 – 11 and shown on the Works Plans (APP-012).

1.2.3 At this stage, the final technology selection cannot yet be made as it will be determined by various technical and economic considerations and will be influenced by future UK Government policy and regulation. The design of the Proposed Development therefore incorporates a necessary degree of flexibility to allow for the future selection of the preferred technology in light of prevailing policy, regulatory and market conditions once a DCO is made.

1.2.4 The Proposed Development will include:

- a carbon capture equipped electricity generating station including a CCGT plant (**Work No. 1A**) with integrated cooling infrastructure (**Work No. 1B**), and carbon dioxide capture plant (CCP) including conditioning and compression equipment, carbon dioxide absorption unit(s) and stack(s) (**Work No. 1C**), natural gas receiving facility (**Work No. 1D**), supporting uses including control room, workshops, stores, raw and demineralised water tanks and permanent laydown area (**Work No. 1E**), and associated utilities, various pipework, water treatment plant, wastewater treatment, firefighting equipment, emergency diesel generator, gatehouse, chemical storage facilities, other minor infrastructure and auxiliaries/ services (all located in the area referred to as the 'Proposed Power and Carbon Capture (PCC) Site' and which together form **Work No. 1**);
- natural gas pipeline from the existing National Grid Gas high pressure (HP) gas pipeline within the Proposed Development Site to supply the Proposed PCC Site including an above ground installation (AGI) for National Grid Gas's apparatus (**Work No. 2A**) and the Applicant's apparatus (**Work No. 2B**) (the 'Gas Connection Corridor');
- electrical connection works to and from the existing National Grid (National Grid Electricity Transmission) 400kV Substation for the export of electricity (**Work No. 3A**) (the 'Electrical Connection Area to National Grid 400kV Substation');
- electrical connection works to and from the existing Northern Powergrid 132kV Substation for the supply of electricity at up to 132kV to the Proposed PCC Site, and associated plant and equipment (**Work No. 3B**) (the 'Potential Electrical Connection to Northern Powergrid 132kV Substation');
- Water Connection Corridors to provide cooling and make-up water including:
  - underground and/or overground water supply pipeline(s) and intake structures within the Stainforth and Keadby Canal, including temporary cofferdam (**Work No. 4A**) (the 'Canal Water Abstraction Option');
  - in the event that the Canal Water Abstraction Option is not available, works to the existing Keadby 1 power station cooling water supply pipelines and intake structures within the River Trent, including temporary cofferdam (**Work No. 4B**) (the 'River Water Abstraction Option'); and

- works to and use of an existing outfall and associated pipework for the discharge of return cooling water and treated wastewater to the River Trent (**Work No. 5**) (the 'Water Discharge Corridor');

- towns water connection pipeline from existing water supply within the Keadby Power Station for potable water (**Work No. 6**);
- above ground carbon dioxide compression and export infrastructure comprising an above ground installation (AGI) for the undertaker's apparatus including deoxygenation, dehydration, staged compression facilities, outlet metering, and electrical connection (**Work No. 7A**) and an AGI for NGCL apparatus (**Work No. 7B**);
- new permanent access from the A18, comprising the maintenance and improvement of an existing private access road from the junction with the A18 including the western private bridge crossing of the Hatfield Waste Drain (**Work No. 8A**) and installation of a layby and gatehouse (**Work No. 8B**), and an emergency vehicle and pedestrian access road comprising the maintenance and improvement of an existing private track running between the Proposed PCC Site and Chapel Lane, Keadby and including new private bridge (**Work No. 8C**);
- temporary construction and laydown areas including contractor facilities and parking (**Work No. 9A**), and access to these using the existing private roads from the A18 and the existing private bridge crossings, including the replacement of the western existing private bridge crossing known as 'Mabey Bridge') over Hatfield Waste Drain (**Work No. 9B**) and a temporary construction laydown area associated with that bridge replacement (**Work No. 9C**);
- temporary retention, improvement and subsequent removal of an existing Additional Abnormal Indivisible Load Haulage Route (**Work No. 10A**) and temporary use, maintenance, and placement of mobile crane(s) at the existing Railway Wharf jetty for a Waterborne Transport Offloading Area (**Work No. 10B**);
- landscaping and biodiversity enhancement measures (**Work No. 11A**) and security fencing and boundary treatments (**Work No. 11B**); and
- minor associated development.

1.2.5 The Proposed Development includes the equipment required for the capture and compression of carbon dioxide emissions from the generating station so that it is capable of being transported off-site. NGCL will be responsible for the development of the carbon dioxide pipeline network linking onshore power and industrial facilities, including the Proposed Development, in the Humber Region. The carbon dioxide export pipeline does not, therefore, form part of the Proposed Development and is not included in the Application but will be the subject of separate consent application(s) to be taken forward by NGCL.

1.2.6 The Proposed Development is designed to be capable of operating 24 hours per day, 7 days a week, with plant operation dispatchable to meet electricity

demand and with programmed offline periods for maintenance. It is anticipated that in the event of CCP maintenance outages, for example, it could be necessary to operate the Proposed Development without carbon capture, with exhaust gases from the CCGT being routed via the Heat Recovery Steam Generator (HRSG) stack.

1.2.7 Various types of associated and ancillary development further required in connection with and subsidiary to the above works are detailed in Schedule 1 'Authorised Development' of the draft DCO (APP-005). This, along with Chapter 4: The Proposed Development in the ES Volume I (APP-047), provides further description of the Proposed Development. The areas within which each numbered Work (component) of the Proposed Development are to be built are defined by the coloured and hatched areas on the Works Plans (APP-012).

1.3 The Proposed Development Site

1.3.1 The Proposed Development Site (the 'Order Limits') is located within and near to the existing Keadby Power Station site near Scunthorpe, Lincolnshire and lies within the administrative boundary of North Lincolnshire Council (NLC). The majority of land is within the ownership or control of the Applicant (or SSE associated companies) and is centred on national grid reference 482351, 411796.

1.3.2 The existing Keadby Power Station site currently encompasses the operational Keadby 1 and Keadby 2 Power Station (under commissioning) sites, including the Keadby 2 Power Station Carbon Capture and Readiness reserve space.

1.3.3 The Proposed Development Site encompasses an area of approximately 69.4 hectares (ha). This includes an area of approximately 18.7ha to the west of Keadby 2 Power Station in which the generating station (CCGT plant, cooling infrastructure and CCP) and gas connection will be developed (the Proposed PCC Site).

1.3.4 The Proposed Development Site includes other areas including:

- a high pressure gas pipeline to supply the CCGT including a gas compound for NGG apparatus and a gas compound for the Applicant's apparatus;
- the National Grid400kV Substation located directly adjacent to the Proposed PCC Site, through which electricity generated by the Proposed Development will be exported;
- Emergency Vehicle Access Road and Potential Electrical Connection to Northern Powergrid Substation;
- Water Connection Corridors:
  - Canal Water Abstraction Option which includes land within the existing Keadby Power Station site with an intake adjacent to the Keadby 2 Power Station intake and pumping station and interconnecting pipework;

- River Water Abstraction Option which includes a corridor that spans Trent Road and encompasses the existing Keadby Power Station pumping station, below ground cooling water pipework, and infrastructure within the River Trent; and
- a Water Discharge Corridor which includes an existing discharge pipeline and outfall to the River Trent and follows a route of an existing easement for Keadby 1 Power Station;

- an existing river wharf at Railway Wharf (the Waterborne Transport Offloading Area) and existing temporary haul road into the into the existing Keadby 1 Power Station Site (the 'Additional Abnormal Indivisible Load (AIL) Route');
- a number of temporary Construction Laydown Areas on previously developed land and adjoining agricultural land; and
- land at the A18 Junction and an existing site access road, including two existing private bridge crossings of the Hatfield Waste Drain lying west of Pilfrey Farm (the western of which is known as Mabey Bridge, to be replaced, and the eastern of which is termed Skew Bridge) and an existing temporary gatehouse, to be replaced in permanent form.

1.3.5 In the vicinity of the Proposed Development Site the River Trent is tidal. Therefore, parts of the Proposed Development Site are within the UK marine area. No harbour works are proposed.

1.3.6 Further description of the Proposed Development Site and its surroundings is provided in Chapter 3: The Site and Surrounding Area in ES Volume I (APP-046).

1.4 The Development Consent Process

1.4.1 As a NSIP project, the Applicant is required to seek a DCO to construct, operate and maintain the generating station, under Section 31 of the 2008 Act. Sections 42 to 48 of the 2008 Act govern the consultation that the promoter must carry out before submitting an application for a DCO and Section 37 of the 2008 Act governs the form, content and accompanying documents that are required as part of a DCO application.

1.4.2 An application for development consent for the Proposed Development has been submitted to and accepted for examination by the Planning Inspectorate (PINS) acting on behalf of the SoS. PINS is now examining the Application and will make a recommendation to the SoS, who will then decide whether to make (grant) the DCO.

1.5 The Purpose and Structure of this Document

1.5.1 This document sets out the Applicant's response to the Examining Authority's (ExA's) regarding the Local Planning Authority's Local Impact Report (LIR) (dated December 2021).

1.5.2 The Applicant's responses are provided in Table 2.1 of this document.

2.0 APPLICANT'S RESPONSE TO NORTH LINCOLNSHIRE COUNCIL LIR

2.1.1 The Applicant's response to the ExA's first written questions are set out in Table 2.1 on the following pages of this document.

2.1.2 Table 2.1 includes the reference number for each relevant question, the ExA's comments and questions and the Applicant's response to each of those questions.

Table 2.1 – Applicant's Response to NLC Local Impact Report (LIR) Comments

No.	Summary of LIR Comments	Applicant's Response:
1.	**Traffic and Transport**	
1a.	NLC note that the improvements to the A18 junction constitute a departure from DMRB standards and that this is subject to agreement with the Local Highway Authority.	The Applicant has agreed to provide a technical note to NLC which provides the swept path analysis and further explanation justifying the relaxation proposed with respect to DMRB standards. Item is included in the NLC Statement of Common Ground (SoCG).
1b.	A temporary Traffic Regulation Order for a 40mph speed limit on the A18 for the duration of the construction phase would be supported by NLC. The LPA emphasise that any permanent reduction to the speed limit sought would not be supported.	Item is included in the NLC SoCG.
1c.	Whilst the LPA has no objection with up to 10 abnormal loads accessing the Site via Bonnyhale Road, they request that as many loads as possible travel via the skewed bridge so that movements on Bonnyhale Road are kept to a minimum.	Item to be included in the next iteration of the NLC SoCG.
2.	**Cultural Heritage and Archaeology**	
2a.	Potential to impact directly on the known and potential archaeological and palaeoenvironmental resource of the application site. Significance acknowledged as "currently unknown" (with potential to be high).	The Applicant will undertake further phase(s) of evaluation during the examination period which will aid the understanding of the significance of any archaeological remains.

No.	Summary of LIR Comments	Applicant's Response:
		Item included in the NLC SoCG.
2b.	NLC require a staged programme of archaeological field evaluation to assess the significance of the Site, stating that it is necessary to prepare a robust assessment of the heritage significance of the site and inform appropriate mitigation.	A staged programme of archaeological evaluation has been undertaken, comprising geoarchaeological assessment and geophysical survey. Further phase(s) of evaluation, including trial trench evaluation, will be undertaken during the examination period. Item included in the NLC SoCG.
2c.	The response references anomalies picked up by the geophysical survey such as isolated enclosures which may be of Romano-British origin (based on the areas records) and anomalies such as crop marks. Further requests for trial trenching are noted to determine the significance of these anomalies.	Further phase(s) of evaluation, including trial trench evaluation, will be undertaken during the examination period. Item included in the NLC SoCG.
2d.	NLC have raised concerns regarding the timings of the submitted outline WSI (Doc Ref. 7.4), noting that the evaluation work would not take place in time to inform the detailed design process. The Council also note that insufficient time allotted to produce evaluation report and that delays to the commencement of construction could be incurred where there is not enough time to implement pre-commencement mitigation fieldwork.	Further phase(s) of evaluation, including trial trench evaluation, will be undertaken during the examination period and the results provided in an ES Addendum. Mitigation requirements will be consulted on with NLC, to be included in the ES Addendum, and the OWSI will be updated to take account of mitigation, as required. Item included in the NLC SoCG

No.	Summary of LIR Comments	Applicant's Response:
2e.	NLC request WSIs for the outstanding evaluation stages as soon as possible; and a WSI for appropriate mitigation once the evaluation work is completed (prior to the DCO's determination).	Further phase(s) of evaluation, including trial trench evaluation, will be undertaken during the examination period. The scope of this work will be agreed with NLC and a WSI for each phase of evaluation agreed. The results will be provided in an ES Addendum. Mitigation requirements will be consulted on with NLC, to be included in the ES Addendum, and an updated OWSI will be produced. Item to be referred to in next iteration of the NLC SoCG.
2f.	The HER requests that additional wording be added to the Outline Written Scheme of Investigation ('WSI') Requirement (16) of the DCO to ensure the adequate recording, assessment and analysis of any human remains discovered.	The Applicant confirms that an updated Outline WSI will be produced following additional evaluation during the examination period which will include a strategy for the discovery of human remains. To be added to the next iteration of the NLC SoCG.
3.	**Noise and Vibration**	
3a.	Construction working hours are requested to be changed to Monday to Friday (except bank holidays) between the hours 08:00-18:00 and Saturday 08:00 to 13:00.	The Applicant notes the LPA comments and will add the item to the next iteration of the NLC SoCG.
4.	**Air Quality**	

No.	Summary of LIR Comments	Applicant's Response:
4a.	NLC Environmental Health Officers have reviewed the Assessment of Amine Degradation and have raised several questions/comments: 1. Querying the origins of the worst case NDMA figure of 0.002mg/m3 in ES Section 4.2.1; 2. Querying how the average wind speed of 4.5m/s was calculated as used in ES Section 4.4.15; 3. NOx and NO2 baseline concentrations derived from the Low Santon monitoring station, clarity requested on which hourly data has been used (i.e. which year) and how this was selected; 4. The LPA note that the modelling of emissions is subject to uncertainty, it is requested that a numerical level of the uncertainly experience is provided that can be used when reviewing the model output tables (5, 6, 7 etc.). NLC also request that the CEMP reference to 'prohibit open fire on site' be replaced with a no burning of waste policy for the site.	The Applicant responds with the following: 1. The direct N-amines have been modelled at the highest annual mean concentration provided by the technology licensors, as a worst case; 2. The average annual wind speed was calculated from the hourly meteorological data sourced for use in the ADMS modelling assessment. The average was calculated for each of the 5 years of meteorological data taken from Doncaster Robin Hood airport, and then the average of these values used; 3. The years of baseline data used match those of the years of meteorological data used in the assessment. As such, the worst case results were obtained from the model which ran with 2016 meteorological data, and this used baseline data for 2016; likewise the same approach was used for all years. This is required in the ADMS model set-up for the amines chemistry module model to run; and 4. The sensitivity of the model to different inputs was detailed in Annex A of the Appendix 8C, which provides the range of values obtained when input parameters to the model are varied. A numerical level of uncertainty has not been provided, as there is variation in the uncertainty in the data itself, which is derived from numerous sources. This includes uncertainty in the reaction rate constants as well as the modelling of dispersion of gases from a stack. However, by assessing five years of meteorological data and running multiple sensitivity scenarios a credible worst case assessment has been

No.	Summary of LIR Comments	Applicant's Response:
		provided with actual results expected to be less than the concentrations predicted. Items 1-4 are included in the existing NLC SoCG. Next iterations of the NLC SoCG and the CEMP to be updated with reference to the NLC 'no burning of waste' policy.
5.	**Ground Contamination**	
5a.	NLC note that (as per ES Section 13.5.3) ground investigation will be undertaken before construction to inform the development design. It is requested that should the findings of the investigation identify unacceptable risks, a further detailed quantitative risk assessment and (if required) detailed remediation strategy will be provided.	Subject to the outcome of the proposed ground investigation works, and if required, site-specific remediation measures, which focus on source removal, pathway breakage or receptor protection would be developed within the boundary of the Proposed Development Site. Such site-specific measures will reduce risks to human health, controlled waters and property from contamination, gas and vapours in the ground, to an acceptable level for this development. The scheme is secured by Requirement 15 of the draft DCO. To be discussed in the next iteration of the SoCG and the CEMP updated with this minor clarification.
6.	**Lighting**	
6a.	NLC note that the Indicative Lighting Strategy states that the ILP provide obtrusive light limits for light intrusion (to windows), sky glow (upward light ratio), and glare for each Environmental Zone. The Council request that the detailed Lighting Strategy (to be submitted for Requirement 7) provides	NLC comments noted. The requested information will be provided at Requirement stage.

No.	Summary of LIR Comments	Applicant's Response:
	evidence of how these limits will be complied with including an assessment of modelled Ix levels and lighting design.	
7.	**Other Matters**	
7a.	NLC have received feedback from the local community which indicates that the cumulative impact of Keadby 3 (in addition to other large scale energy developments in the surrounding area) could hold impacts to quality of life. It has been indicated that they would consider it appropriate for Keadby Generation Limited to contribute towards measures which the local community feel would help to mitigate against this impact.	The Applicant refers to the significant beneficial local and regional impacts which would result from the direct, indirect and induced employment created by the construction phase of the Proposed Development along with the potential to contribute to the establishment of the regions green economy growth though supply chain development. An item will be added to the NLC SoCG to reflect this. In addition to the above, an Employment, Skills and Training Plan designed to develop opportunities for residents of North Lincolnshire is proposed to be submitted prior to commencement of the development, under Requirement 37. The Applicant would also draw attention to the support and contributions made to local parishes through membership of various groups such as Keadby Regeneration and Keadby Parish Council Jubilee Event Committee, along with ongoing donations to local charities and community interest projects and the sponsorship of local events.
7b	Reference is made to the previous Community Fund associated with the Keadby Wind Farm Development, it is suggested that a similar fund is set up for Keadby 3.	The Applicant does not consider a community fund relevant to planning process. Whilst Keadby Wind Farm is referenced, it should be noted that wind farms generate very little in terms of local economic and employment benefits, particularly when

No.	Summary of LIR Comments	Applicant's Response:
		compared with the numerous long term and supply chain job opportunities from the Proposed Development.