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2. Assessment Methodology

2.1. Environmental Impact Assessment Approach and Scope

2.1.1. This Environmental Statement (ES) has been prepared to satisfy the requirements of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('the EIA Regulations') (see **ES Volume I Chapter 1**: Introduction (**Application Document Ref. 6.2**).

2.1.2. In preparing this ES (in line with the EIA Regulations as it forms part of the EIA process), reference has been made to the following guidance and advice:

- Planning Act 2008: Pre-application stage for Nationally Significant Infrastructure Projects (Ministry of Housing, Communities & Local Government and Department for Levelling Up, Housing and Communities 2024);
- Advice on EIA Notification and Consultation (Planning Inspectorate (PINS), 2024);
- Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental information and Environmental Statements (PINS, 2020);
- Advice Note Nine: Rochdale Envelope (PINS, 2018);
- Advice on Habitats Regulations Assessment (PINS, 2024);
- Advice on Transboundary Impacts and Process (PINS, 2024);
- Advice on Cumulative Effects Assessment relevant to nationally significant infrastructure projects (PINS, 2024); and
- Advice on The Water Framework Directive (PINS, 2024).

2.1.3. The EIA Scoping Opinion, received from the Secretary of State on 10 June 2024 (**ES Volume II Appendix 1B (Application Document Ref. 6.3)**) and the advice contained within it regarding assessment methodology, topics and presentation of the final ES, together with responses received through consultation and engagement have informed this ES.

2.1.4. In response to the Scoping Opinion, the EIA and this ES include assessments of the following environmental topics:

- **Chapter 8**: Air Quality;
- **Chapter 9**: Noise and Vibration;
- **Chapter 10**: Traffic and Transport;
- **Chapter 11**: Biodiversity and Nature Conservation;
- **Chapter 12**: Water Environment and Flood Risk;
- **Chapter 13**: Geology, Hydrogeology and Land Contamination;
- **Chapter 14**: Landscape and Visual Amenity;
- **Chapter 15**: Cultural Heritage;

- **Chapter 16**: Socio-economics;
- **Chapter 17**: Population and Human Health;
- **Chapter 18**: Climate Change and Sustainability;
- **Chapter 19**: Major Accidents and Disasters;
- **Chapter 20**: Waste and Materials; and
- **Chapter 21**: Cumulative and Combined Effects.

2.1.5. Since the EIA Scoping Opinion was received, case law (*Finch v Surrey County Council* [2024] PTSR 988, June 2024*)* has highlighted the need for EIA to take account of the indirect as well as direct effects of projects. The direct and indirect effects that need to be considered are those which have a necessary degree of connection between the development in question and its effects. For the Proposed Development, with regard to the indirect effects, this means considering impacts associated with the supply of fuel (which is considered to be an upstream effect). No downstream effects have currently been identified for assessment. This case law has predominantly increased the scope of the Climate Change and Sustainability assessment. Although it is not considered to have altered the scope of the wider topics it has still been considered and applied to the technical scope of each assessment topic.

2.1.6. In relation to the technical scope of **ES Volume I Chapter 18:** Climate Change and Sustainability (**Application Document Ref. 6.2.** further assessment has been undertaken to include the greenhouse gas (GHG) effects of supplying hydrogen to the Proposed Development. Although there is some uncertainty around the source and the supply route of hydrogen to the Site, the assessment has drawn on information from published sources, benchmark information and research studies and developed conservative assumptions to present a robust assessment based on the worst-case scenarios. High level qualitative assessment has also been factored into **ES Volume I Chapter 19:** Major Accidents and Disasters (**Application Document Ref. 6.2)** to include assessment of risk associated with the supply of hydrogen to the Site.

2.1.7. The EIA Scoping Report (**ES Volume II, Appendix 1A (Application Document Ref. 6.3)**) concluded that two topics did not need to be considered as part of the EIA accompanying the Application for the Proposed Development and could be scoped out. These topics and, where relevant, the response in the Scoping Opinion are described in this chapter.

Aviation

2.1.8. The Civil Aviation Association (CAA) has a general interest in charting all known structures of 91.4m (300 feet) or more above ground level (AGL) and may also require lighting at the top of tall structures.

2.1.9. The existing chimney stacks of Keadby 2 and Keadby 1 Power Station are 75m and 60m respectively and therefore below the height that the CAA

require to be charted although the Keadby 2 Power Station stack has been fitted with lighting at the top for aviation warning purposes.

2.1.10. The nearest airfield (Sandtoft Airfield) is located approximately 4.6km to the south-west of the Site and will be formally consulted in respect of the Proposed Development.

2.1.11. Relevant details on the height of proposed structures and lighting is detailed within **ES Volume I Chapter 4**: The Proposed Development **(Application Document Ref. 6.2).** Although there would be a new stack for the proposed CCGT it is not proposed to exceed 91.4m AGL (reaching up to 85m AGL (up to 88.0m Above Ordnance Datum (AOD))). The Applicant has consulted with the organisations listed in the Scoping Opinion as part of its formal consultation. Such organisations have included: the CAA (the aviation regulator); NATS (responsible for managing civilian air traffic being routed through the en-route Controlled Airspace (CAS) above the UK) and the MOD Defence Infrastructure Organisation (DIO) (responsible for safeguarding the interests of the Ministry of Defence (MoD)).

2.1.12. The CAA was formally consulted on the Proposed Development to review any requirements for aviation lighting on the stack and to enable the Proposed Development to be charted in future, if required. The CAA has confirmed that it has no specific comments to make on the Proposed Development itself but provided the Applicant with aviation related guidance that has been taken into account in the Requirements of the **Draft DCO** (**Application Document Ref. 3.1).**

2.1.13. As part of the statutory consultation process, local airfields including Doncaster Sheffield Airport, Sandtoft Airfield and Humberside Airport have also been consulted. No comments were received from the airports or airfields as part of the consultation. It is relevant to note that the consultation response from Doncaster Sheffield Airport on the proposed Keadby CCS Power Station (which would require taller stacks compared to the Proposed Development in a similar location) confirmed that no impact on the airfield was anticipated and that they would only assess structures with a height of >150m AGL. The structures associated with the Proposed Development do not exceed this height.

2.1.14. The likely effect on military and civil aviation radar has been addressed through the above consultation. NATS previously confirmed (in relation to the Keadby CCS Power Station DCO) that it operates no infrastructure within 10km of the Site and accordingly do not anticipate an impact on operations. This has been re-confirmed as part of the statutory consultation. The DIO has responded to the statutory consultation confirming that the Site falls within an area within which military aircraft may conduct low level flight training. Their response sets out requirements for inclusion in the Order to address this impact.

2.1.15. In addition, the Meteorological Office is not a statutory consultee but has been consulted as part of the EIA process and confirmed that the Proposed Development would not present a risk of compromising the use of Ingham Meteorological Radar, some 30km south-east of the Site.

Electronic Interference

2.1.16. The EIA Scoping Report noted that the proposed maximum building heights and expected temporary construction cranes would be of comparable height to those associated with Keadby 2 Power Station construction. Therefore, an assessment of the Proposed Development's effect on electronic interference was not considered to be required.

2.1.17. The introduction of new structures of significant height and bulk into an environment can cause disruption to the reception of electromagnetic waves. Although this effect relates to both radio and TV signals, TV reception is potentially more affected and as such only TV reception has been considered.

2.1.18. The tallest structures associated with the existing Keadby 1 Power Station are the stacks at 60m high, whilst those associated with Keadby 2 Power Station are the stack at 75m and heat recovery steam generator (HRSG) building at 52m high. It is anticipated that the tallest structure associated with the Proposed Development would be the stack at up to 85m AGL (88.0m AOD). With the exception of this stack, the Proposed Development would not introduce new buildings or structures that are significantly taller than those around it, including notably the adjacent turbines associated with Keadby Windfarm which are present to the north of the Site, and which are 80m high to the nacelle or 126m high to the blade tip.

2.1.19. The proposed maximum building heights will be no higher than the existing stacks at Keadby 1 Power Station and Keadby 2 Power Station, with the exception of the proposed stack, which (as outlined above) may be up to 85m AGL (88.0m AOD) but with a diameter of only 9m. The expected maximum heights of temporary construction cranes will be similar to the height of those used for construction of Keadby 2 Power Station.

2.1.20. Terrestrial television signals are transmitted in digital format. The only relevant interference mechanism affecting digital terrestrial TV signals is attenuation due to buildings physically blocking (and absorbing) them. If the TV signals are too weak then the pictures very quickly deteriorate into random 'blocks' and then disappear altogether.

2.1.21. Given the height and massing of the buildings, stacks and temporary structures associated with the Proposed Development, the lack of nearby residential properties in close proximity (less than 1km) to the Main Site (comprising the built development associated with the CCGT Power Station) and the lack of any sight lines between transmission antenna and residential areas being obscured by the Proposed Development, it is considered that an

assessment of the Proposed Development's effect on electronic interference is not required as part of the EIA.

2.1.22. There are a number of telecommunications transmitters within 2km of the Site, as follows (www.mastdata.com):

- BT transmitter in Keadby, approximately 300m south-east of the Site;
- three transmitters adjacent to Althorpe Train Station, approximately 900m south-east of the Site;
- Vodafone transmitter in Althorpe, approximately 2km south of the Site; and
- O_2 transmitter approximately 2km east of the Site.

2.1.23. Relevant telecommunications companies have been formally consulted and their responses to consultation have been described within the **Consultation Report** (**Application Document Ref. 5.1**).

2.1.24. On the basis of the above, it is concluded that there is no potential for significant electronic interference effects as a result of the Proposed Development.

2.2. Environmental Statement (ES)

2.2.1. This ES presents a description of the Proposed Development and its likely significant environmental effects on the environment during construction, operation (including maintenance where relevant) and decommissioning, based on the environmental information available at the time. It also details measures to avoid or reduce such effects and the alternatives considered.

2.2.2. This ES summarises the outcomes to date of the following EIA activities:

- establishing baseline conditions;
- consultation with statutory and non-statutory consultees;
- consideration of relevant local, regional and national planning policies, guidelines and legislation relevant to the EIA;
- consideration of technical standards for the development of significance criteria and specialist assessment methodologies;
- design review;
- review of secondary information, previous environmental studies, publicly available information and databases;
- expert opinion;
- physical surveys and monitoring;
- desk-top studies;
- modelling and calculations; and
- reference to current guidance.

2.2.3. These activities have enabled the prediction of impacts in relation to the current and future baseline, and a prediction based on the information available of the likely significance of effects on environmental receptors.

2.2.4. The term 'impact' refers to changes arising from the Proposed Development, whereas the term 'effect' is used to describe the result of the impact on a receptor.

2.2.5. Each technical chapter within this ES (**ES Volume I Chapters 8 to 20 (Application Document Ref. 6.2)**) follows the same structure for ease of reference, which is:

- Introduction;
- Legislation, Planning Policy and Guidance;
- Assessment Methodology (Including Consultation and Rochdale Envelope Approach);
- Baseline Conditions;
- Development Design and Impact Avoidance;
- Likely Impacts and Effects;
- Mitigation and Enhancement Measures;
- Monitoring;
- Limitations or Difficulties;
- Summary of Likely Significant Residual Effects; and
- References.

2.3. Rochdale Envelope

2.3.1. As discussed in **Chapter 4**: The Proposed Development (**Application Document Ref. 6.2**) a number of technical parameters have yet to be finalised for the Proposed Development, in order to maintain flexibility prior to commencement of the detailed design of the Proposed Development. It is important to maintain technical and commercial flexibility to meet the changing demands of the UK market and government policy on the transition to Net Zero, prior to plant construction. Flexibility is also particularly important as not only could this be the first CCGT electricity generating station which is designed to run on 100% hydrogen to be developed in the UK, but it will also include the ability to run on 100% natural gas. This is included to enable the CCGT power station to meet UK energy demands in the interim until such time as a technically and commercially viable hydrogen supply chain option becomes available to the Site. Therefore, the Rochdale Envelope approach has been applied within the EIA to ensure a robust assessment is presented of the likely significant environmental effects of the Proposed Development, in accordance with the Planning Inspectorate's Advice Note Nine: The Rochdale Envelope (PINS, 2018). This involves assessing the maximum (and where relevant, minimum) parameters for the elements where flexibility needs to be retained, recognising that the worst-case parameter for one technical

assessment may differ from another. Where this approach is applied, this has been confirmed within the relevant chapters of this ES.

2.3.2. As is relevant for each technical discipline, alternative designs under the Rochdale Envelope approach have been assessed, in order to predict worst-case overall impacts. These have been used in the assessment of effects significance. Each of the **ES Volume I Chapters 8 – 20** (**Application Document Ref. 6.2**) describe the parameters applied in relation to the particular discipline. Where key elements of the Proposed Development design have been fixed (e.g. maximum stack heights) these have been clearly described in **ES Volume I Chapter 4**: The Proposed Development (**Application Document Ref. 6.2**). However, where it is necessary to retain flexibility in the Application, any future changes to design parameters will remain within the worst-case envelope assessed in this assessment. Justification for the need to retain flexibility in certain parameters is outlined in **ES Volume I Chapter 4**: The Proposed Development (**Application Document Ref. 6.2**).

2.4. Study Areas: Spatial Scope of Assessment

2.4.1. The assessment chapters of this ES (**ES Volume I Chapters 8 to 21 (Application Document Ref. 6.2)**) describe their spatial scope, including their rationale for determining the specific study area within which the assessment is focussed. The study areas are a function of the nature of the impacts and the locations of potentially affected environmental resources or receptors. The widest spatial scope considered is 15km, which relates to the appraisal of potential operational air quality effects on statutory designated ecological sites as a result of the Proposed Development. Justification for the spatial scope considered appropriate is documented in each topic chapter (**ES Volume I Chapters 8 to 21** (**Application Document Ref. 6.2**)).

2.4.2. The spatial scope of the Proposed Development is predominantly focussed on terrestrial areas where the permanent structures of the Proposed Development are to be developed. These locations are shown on **ES Volume III Figure 3.3:** Indicative Parts of the Site Plan (**Application Document Ref. 6.4**).

2.5. Definition of Existing and Future Baseline

2.5.1. Existing baseline conditions have been defined for each technical assessment topic in **ES Volume I Chapters 8 to 21** (**Application Document Ref. 6.2**), based on desk-based studies and site surveys, where necessary. As described above, it is also important to consider future baseline conditions (in the absence of the Proposed Development) against which the effects of the Proposed Development can be assessed.

2.6. Assessment Years and Assessment Scenarios: Temporal Scope of Assessment

2.6.1. The approach has been to assess the environmental impacts of the Proposed Development at key stages in its construction and operation and, as far as practicable, its final decommissioning.

2.6.2. The 'existing baseline' date is 2024 since this is the period in which the majority of the baseline studies for the EIA have been undertaken, although further updates have been made in 2025 where necessary to ensure the baseline information provided is an accurate reflection of the existing environmental conditions and most recent data sources (e.g., met data to inform air quality modelling, most recent TEMPro software for traffic growth modelling). 'Future baseline' conditions are also predicted for each assessment scenario, whereby the conditions anticipated to prevail at a certain point in the future (assuming the Proposed Development does not progress) are identified for comparison with the predicted conditions with the Proposed Development. This can include the introduction of new receptors and resources into an area, or new development schemes that have the potential to change the baseline, where these form committed developments.

2.6.3. The assessment scenarios that have been considered for the purposes of the EIA (and considered in this ES) are as follows:

2.6.4. Base-case scenario

- **Existing Baseline (2024/2025)** – the existing baseline includes the operation of the existing Keadby 1 and Keadby 2 Power Stations;
- **Future Baseline for Construction (No Development) (2027-2030)** – this is assumed to be the same as the Existing Baseline;
- **Future Baseline for Operation (2030)** – assuming the necessary consents are granted, and construction commences in 2027 the Proposed Development would be constructed by 2030. In relevant chapters, the assessment has included a scenario where Keadby 1 and Keadby 2 are operating at the same time as the Proposed Development;
- **Future Baseline for Decommissioning (from 2055) –** as the Proposed Development approaches the end of its anticipated design life (circa 25 years) it is anticipated that that Keadby 1 would no longer be operational so only Keadby 2 and the Proposed Development would be operating simultaneously;
- **Construction (2027-2030)** – construction of the Proposed Development could (subject to the necessary consents being granted and an investment decision being made) potentially start within 2027. For certain topics such as road traffic, a worst-case is to consider an assessment year later in the programme. Considering that the DCO may be granted allowing construction to commence within up to 7 years from the date of consent, construction activities may commence as late as 2033;

- **Opening and/ or Operation (2030 onwards)** – assuming an approximate three and a half year construction programme followed by a period of commissioning, the Proposed Development is unlikely to commence commercial operation before 2030. Where it is necessary to select a specific year for assessment purposes, the assessment years have been chosen by specialists as the worst-case for each topic; and
- **Decommissioning (from 2055)** – it is envisaged that the Proposed Development would be designed to operate for circa 25 years. Once the development starts to approach the end of this period, its future operation would be reviewed. Depending on future market conditions. it is therefore anticipated that, at the earliest, decommissioning of the Proposed Development would be expected to commence at some point after 2055. This ES has assumed that the Proposed Development could operate for longer than a 25 year design life, and in relevant chapters has considered and assessed the potential for operational effects to continue beyond this timeframe. If the operating life were to be extended, as appropriate the Proposed Development would be upgraded in line with the legislative requirements at that time.

Hydrogen Connection

2.6.5. The Proposed Development will be designed to run on 100% hydrogen from the start of operation. However, it is currently anticipated that the required hydrogen supply chain may not be available at the start of operation, in which case the Proposed Development would also need to be able to operate using 100% natural gas or a blend of natural gas and hydrogen, until such time as a technically and commercially available hydrogen supply chain option becomes available to the Site. In line with Government policy, it is recognised that developments such as the Proposed Development are needed to stimulate investment in the development of hydrogen production and supply infrastructure.

2.6.6. The timing of the fuel switchover (and any intermediate operational period using a blend of natural gas and hydrogen) cannot be confirmed at this time as the hydrogen supply to the Site is dependent upon government policy and third party developments which have not yet been confirmed and are not in the Applicant's control. However, for the purposes of the greenhouse gas emissions assessment presented in **ES Volume I Chapter 18**: Climate Change and Sustainability (**Application Document Ref. 6.2**), a range of scenarios have been considered to illustrate how greenhouse gas emissions would vary with different operational scenarios across the lifetime of the Proposed Development.

Keadby 1 Power Station

2.6.7. Keadby 1 Power Station is an existing gas fired power station that began commercial operation in 1996. Its operational life is expected to end during the operation of the Proposed Development.

2.6.8. To ensure that this ES has considered the relevant worst-case assessments, the future baseline for operation of the Proposed Development has considered both that Keadby 1 could remain operational or be decommissioned over the lifetime of the Proposed Development.

2.6.9. If decommissioning of Keadby 1 is required, the process will be undertaken in accordance with the relevant regulations and consenting requirements. The effects of the decommissioning on the environment would be considered as part of the consenting proposals at that time, and any required mitigation measures would then be applied during the decommissioning works. The decommissioning proposals would also be subject to approval by the relevant authority.

2.6.10. In order to determine whether the removal of Keadby 1 Power Station structures would affect the worst-case assessment presented in this ES, this additional scenario has been considered in the assessment of landscape and visual amenity and built heritage aspects (**ES Volume I Chapter 14:** Landscape and Visual Amenity (**Application Document Ref. 6.2**) and **ES Volume I Chapter 15:** Cultural Heritage of (**Application Document Ref. 6.2**). For the purposes of this assessment, the following assumptions have been applied:

- structures – Keadby 1 Power Station structures would be likely to remain physically present in the landscape for a period of time once the operations at Keadby 1 Power Station had ceased. In the future, these structures may need to be demolished, although it is not appropriate to rule out, for example, a repower of the site which would secure a future use for buildings. There is no statutory requirement for demolition and the timing of demolition is not subject to any specific conditions in the Keadby 1 Power Station Section 36 consent; and
- traffic movements - traffic movements associated with any future decommissioning of Keadby 1 Power Station would not overlap with those associated with the construction of the Proposed Development. As the future plans for Keadby 1 Power Station are within SSE's control, it is not envisaged that there would be a scenario whereby any decommissioning / demolition of Keadby 1 Power Station would coincide with the construction of the Proposed Development..The worst-case assessment presented in **ES Volume I Chapter 10**: Traffic and Transport (**Application Document Ref. 6.2**) does not therefore require consideration of Keadby 1 Power Station demolition.

2.7. Development Design, Impact Avoidance and Mitigation

2.7.1. The design process for the Proposed Development has been heavily influenced by the findings of environmental appraisals and the EIA process and will continue to be as the ES assessments are undertaken. Therefore, the siting of the Proposed Development and the measures incorporated into the concept design will ensure that environmental impacts can be avoided or minimised as far as reasonably practicable.

2.7.2. The key aspects of the design are described in **ES Volume I Chapter 4**: The Proposed Development (**Application Document Ref. 6.2**). These include measures needed for legal compliance, as well as measures that implement the requirements of best practice guidance documents (e.g. Environment Agency guidelines on pollution prevention). The assessments have been undertaken on the basis of these measures being implemented (i.e. they are 'embedded mitigation').

2.7.3. Where alternative design options have been considered during the design evolution these are described in **ES Volume I Chapter 6**: Consideration of Alternatives (**Application Document Ref. 6.2**).

2.7.4. Implementation of the impact avoidance and minimisation measures relied on in the assessment are set out in **ES Volume II Appendix 22A** Commitments Schedule (**Application Document Ref. 6.3**) and where relevant these are proposed to be secured in the **Draft DCO** (**Application Document Ref. 3.1**), for example through the setting of limits of deviation (e.g. specific maximum AOD heights and defined work areas) or specifying mitigation measures via a Requirement.

2.7.5. Once the likely effects are identified and quantified, consideration will be given to any further mitigation (over and above anything identified within the Development Design and Impact Avoidance sections of each topic chapter) that may be required to mitigate any significant adverse effects identified. The residual effects (after the implementation of mitigation) will then be assessed and presented in each topic chapter. Likely significant residual effects have been summarised in **ES Volume I Chapter 22**: Summary of Significant Residual Effects (**Application Document Ref. 6.2**).

2.8. Impact Assessment Methodology and Significance Criteria

2.8.1. Impacts are defined as changes arising from the Proposed Development, and consideration of the result of these impacts on environmental receptors enables the identification of associated effects, and their classification (major, moderate, minor and negligible, and adverse, neutral or beneficial). Each effect has been classified both before and after mitigation measures have been applied. Effects after mitigation are referred to as ‘residual effects’.

2.8.2. The classification of effects is undertaken with due regard to the following:

- extent (local, regional or national) and magnitude of the impact;
- duration (whether short, medium or long-term);
- nature (whether direct or indirect, reversible or irreversible);
- whether the effects occur in isolation, are cumulative or interactive;
- performance against environmental quality standards and in the context of relevant legislation, standards and accepted criteria;
- number of receptors affected;
- sensitivity of receptors;
- compatibility with environmental policies; and
- professional experience and judgement of the assessor.

2.8.3. Further details are provided in each topic chapter of this ES (**Volume I, Application Document Ref. 6.2**).

2.8.4. Where it has not been possible to quantify effects, qualitative assessments have been undertaken, based on available knowledge and professional judgment. Where any uncertainty exists, this has been noted in the relevant technical chapter in the 'Limitations or Difficulties' section.

2.8.5. To enable comparison between technical topics and aid understanding of the EIA findings, standard terms are used wherever possible to classify effects throughout this ES (major, moderate, minor and negligible), and effects are also described as being adverse, neutral or beneficial. Where the quality standards for each technical discipline result in deviations in the standard assessment methodology, these are described in the relevant chapters, as applicable.

2.8.6. Definitions of the standard terms are provided below:

- negligible – imperceptible effect to an environmental resource or receptor;
- minor – slight, very short or highly localised effect;
- moderate – limited effect (by extent, duration or magnitude);
- major – considerable effect (by extent, duration or magnitude) of more than a local scale or in breach of recognised acceptability, legislation, policy or standards;
- adverse – detrimental or negative effects to an environmental resource or receptor;
- neutral – effects to an environmental resource or receptor that are neither advantageous or detrimental; and
- beneficial – advantageous or positive effect to an environmental resource or receptor.

2.8.7. Moderate and major effects are generally considered to be 'significant' for the purposes of the EIA Regulations, in accordance with standard EIA practice.

2.8.8. Each of the technical chapters provides further description and definition of the assessment criteria relevant to each topic. Where possible, this has been based upon quantitative and accepted criteria (for example British Standards), together with the use of value judgment and expert interpretation to classify effects.

2.8.9. In general, the classification of an effect is based on the magnitude of the impact and sensitivity or importance of the receptor, using the matrix shown in **Table 2.1**. Where there are deviations away from this matrix (due to the technical guidance for a specific assessment topic), this is highlighted within the relevant technical chapter and the reason for the variation explained.

Table 2.1: Classification of effects

Magnitude of Impact	Sensitivity/Importance of Receptor			
	High	**Medium**	**Low**	**Very Low**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

2.8.10. In the context of the Proposed Development, short-term effects are those associated with the site preparation and construction and/or decommissioning phases, which cease when construction or decommissioning works are completed. Medium and long term effects are those associated with the completed, operational Proposed Development, which last for the duration of the operational phase and in some cases, beyond this. Effects may also be permanent (irreversible) or temporary (reversible) and direct or indirect.

2.8.11. Effects on areas on the scale of the Lincolnshire County, or North Lincolnshire district (or similar scale across local authority boundaries) are considered to be at a regional level, whilst effects that cover different parts of the country, or England as a whole, are considered to be of a national level. Smaller scale effects are considered to be at a local level.

2.9. Cumulative and Combined Effects

2.9.1. As required by the EIA Regulations, consideration is given to the potential for cumulative and combined effects to arise as a result of the Proposed Development.

2.9.2. Cumulative effects are those that accrue over time and space from a number of development activities. The impact of the Proposed Development has been considered in conjunction with the potential impacts from other projects or activities which are reasonably foreseeable in terms of delivery. This includes projects that have been submitted but have not yet been approved or have planning permission or development consent that are located within a geographical scope where environmental impacts could act together to create a more significant overall effect on a receptor and where sufficient environmental information is available.

2.9.3. Combined effects are those resulting from a single development, in this case the Proposed Development, on any one receptor that may collectively cause a greater effect (such as the combined effects of noise and air quality/dust impacts during construction on local residents).

2.9.4. The approach to assessment of cumulative and combined effects takes into account guidance contained within the 'Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment' relevant to nationally significant infrastructure projects' (PINS, 2024), which provides advice on the identification and assessment of other planned developments. **ES Volume I Chapter 21**: Cumulative and Combined Effects (**Application Document Ref. 6.2**) presents the findings.

Inter-related Effects and Interdependencies

2.9.5. It is recognised that different consultees have interests in different aspects of the environment. For ease of reference, **Table 2.2** illustrates where inter-related effects may arise (shaded in blue).

Table 2.2: Inter-relationships between environmental topics in this ES

	Chapter 8: Air Quality	Chapter 9: Noise and Vibration	Chapter 10: Traffic and Transport	Chapter 11: Biodiversity and Nature Conservation	Chapter 12: Water Environment and Flood Risk	Chapter 13: Geology, Hydrogeology and Land Contamination	Chapter 14: Landscape and Visual Amenity	Chapter 15: Cultural Heritage	Chapter 16: Socio economics	Chapter 17: Population and Human Health	Chapter 18: Climate Change and Sustainability	Chapter 19: Major Accidents and Disasters	Chapter 20: Waste and Materials
Chapter 8: Air Quality			■	■		■	■	■		■	■	■	
Chapter 9: Noise and Vibration			■	■	■			■		■			
Chapter 10: Traffic and Transport	■	■			■		■		■	■	■	■	■
Chapter 11: Biodiversity and Nature Conservation	■	■			■	■	■				■		
Chapter 12: Water Environment and Flood Risk		■	■	■		■				■	■	■	

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Chapter 20:Waste and Materials													

2.10. Transboundary Effects

2.10.1. The Secretary of State undertook an initial transboundary screening exercise for the Proposed Development under Regulation 32 of the EIA Regulations. The screening exercise concluded, on the basis of the information available from the Applicant at scoping stage, that the Proposed Development is not likely to have a significant effect either alone or cumulatively on the environment in any European Economic Area (EEA) state.

2.10.2. Consideration has been given to the Planning Inspectorate Advice entitled Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process (PINS, 2024) and specifically Annexes 1 and 2, which set out the criteria and relevant considerations taken into account by the Planning Inspectorate when screening NSIP for likely significant effects on the environment in another EEA state.

2.10.3. The nearest EEA states are the Republic of Ireland at over 350km west and the Netherlands at over 370km east of the Site. Taking into account the potential pollution impact pathways through air, land and water, and the effects predicted to arise from the Proposed Development, set out in **ES Volume I Chapter 8**: Air Quality (**Application Document Ref. 6.2**), **ES Volume I Chapter 11**: Biodiversity and Nature Conservation (**Application Document Ref. 6.2**) and **ES Volume I Chapter 12**: Water Environment and Flood Risk (**Application Document Ref. 6.2**) within their respective spatial scopes, the likelihood of significant effects on the environment of another EEA state is considered negligible. Therefore, significant transboundary effects associated with the Proposed Development are not anticipated.

2.11. References

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