ENVIRONMENTAL STATEMENT – VOLUME 1 – CHAPTER 18 CUMULATIVE EFFECTS

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations, 2009 - Regulation 5(2)(a)

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18.1. INTRODUCTION

18.1.1. This chapter reports the outcome of the assessment of likely significant cumulative effects as a result of the Proposed Scheme.

18.1.2. Impacts during the construction and operational phases of the Proposed Scheme are assessed. Impacts during the decommissioning phase of the Proposed Scheme have been scoped out with justification set out (in paragraphs 18.5.2-3) below.

18.1.3. A full description of the Proposed Scheme is described in **Chapter 2 (Site and Project Description)** (document reference 6.1.2) of this Environmental Statement (ES).

18.1.4. In line with Schedule 4, paragraph 5(e) of the Infrastructure Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (the EIA Regulations) the ES will consider *"the cumulation of effects with other existing and / or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.*" In accordance with the EIA Regulations, the Planning Inspectorate's (PINS) Advice Note 17 (Planning Inspectorate, 2019) and other best practice guidance the following types of cumulative effects have been considered in the ES:

- **a.** **Intra-project Combined Effects** – the interaction and combination of different residual (post-mitigation) environmental effects of the Proposed Scheme affecting the same receptor; and
- **b.** **Inter-project Cumulative Effects** – the combined residual (post-mitigation) environmental effects of the Proposed Scheme with a committed project (or projects) affecting the same receptor.

18.1.5. This chapter (and its associated figures (**Volume 2**) and appendices (**Volume 3**)) is intended to be read as part of the wider ES with particular reference to **Chapters 5-17** of this ES, as well as in conjunction with the **Habitat Regulations Assessment Report** (document reference 6.8.1)**.**

18.1.6. This chapter:

- **a.** Summarises the legislative and policy framework;
- **b.** Describes consultation undertaken to date;
- **c.** Describes the methodology followed for the assessment;
- **d.** Identifies the potential cumulative impacts as a result of the Proposed Scheme; and
- **e.** Reports the assessment of the potential significant intra-project combined effects and inter-project cumulative effects of the Proposed Scheme.

18.1.7. As stated in **Chapter 1 (Introduction)** (document reference 6.1.1), **paragraph 2.3.5** for the purposes of the EIA the worst-case construction programme for each topic

may differ, therefore the construction programme option which has been assessed is set out in each individual topic chapter of the ES, along with an explanation of the approach taken to optionality more broadly.

18.2. LEGISLATIVE AND POLICY FRAMEWORK

LEGISLATIVE FRAMEWORK

18.2.1. The applicable legislative framework is summarised as follows.

National

18.2.2. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Schedule 4, Paragraph 5 of the EIA Regulations (defined above) requires that an ES includes:

> "A description of the likely significant effects of the development on the environmental resulting from, inter alia -
>
> > "…(e) the cumulation of effects with other existing and / or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;
>
> "The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects of any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development".

POLICY FRAMEWORK

18.2.3. The applicable policy framework is summarised as follows:

a. Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change, 2011). Paragraph 4.1.3 of NPS EN-1 states that:

> *"In considering any proposed development, and in particular when weighting its adverse impacts against its benefits, the Infrastructure Planning Commission [now the Secretary of State] should take into account:*

i. Its potential benefits, including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and

ii. Its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts".

iii. Paragraph 4.2.5 of NPS EN-1 goes on to state that when considering cumulative effects, "the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence). The IPC also have other

evidence before it, for example from appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions"; and

iv. Paragraph 4.2.6 of the NPS EN-1 states that consideration should be given to "how the accumulation of, and inter-relationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place".

b. Draft Overarching National Policy Statement (NPS) for Energy (EN-1) September 2021 (Department for Business, Energy and Industrial Strategy , 2021). The Applicant is aware that the Government is currently updating the Energy NPSs and it is anticipated that these will be published in 2022. Accordingly, the updated versions of the NPSs will be considered as part of the cumulative assessment during the EIA. Further details of the NPS consultation process are set out in **paragraph 1.4.5** of **Chapter 1 (Introduction)** of this ES.

c. Paragraph 1.7.4 of the draft NPS EN-1 states "*The energy NPSs set out mitigation for cumulative negative effects by requiring the Secretary of State to consider the accumulation of effects as a whole in their decision making on individual applications for development consent*."

d. Paragraph 4.8.6 states that development consent applications for power CCS projects needs to consider how cumulative impacts will be assessed.

18.2.4. An assessment of the relevant policies is detailed further in the **Planning Statement** (document reference 5.2).

18.3. CONSULTATION

18.3.1. **Table 18.1** provides a summary of the consultation undertaken in support of the preparation of this assessment.

Table 18.1 - Consultation Summary

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
Meeting - 21 January 2022	Selby District Council	Following meeting with the Local Planning Authority (LPA) on 20 December 2021, a subsequent meeting was held to discuss the short list of 'other developments' and confirm with the LPAs if there are any other developments to consider. The proposed inter-project cumulative effects assessment methodology was agreed. An updated short list of 'other developments' was issued to the LPAs
	North Yorkshire County Council	

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
		on 17 February 2022 via email (see below).
Email – 17 February 2022	Selby District Council East Riding of Yorkshire Council Doncaster Council North Yorkshire County Council	A confirmation email of the updated short list of 'other developments' (including the inter-project cumulative effects methodology) was issued to the LPAs on 17 February 2022 via email. Doncaster Council responded on 17 February 2022 with additional information regarding the status of the projects under consideration. East Riding of Yorkshire Council responded on 22 February 2022 stating that if the information was taken from the public access Planning Portal it would be up-to-date and correct. No formal response was issued from North Yorkshire County Council. Selby District Council responded on 25 February with comments on the shortlist. Responses to these comments and an updated shortlist were reissued on 3 March 2022. Further responses were received from SDC on the 14 March noting the updated developments that had been scoped in / out of the cumulative assessment.
Meeting - 5 April 2022	Selby District Council North Yorkshire County Council	In a meeting held on 5 April 2022, the phasing of the Flue Gas Demolition (FGD) was discussed. The Applicant stated that the intention was for the demolition of three units (Absorber Units 4, 5 and 6) to be carried out before the Proposed Scheme, and the demolition of Absorber Units 1, 2 and 3 to be carried out after construction of the Proposed Scheme. There would therefore be no cumulative effects during

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
		the construction phase. However, SDC raised that under the current arrangements it would still be possible, for the Applicant to demolish units 1,2 and 3 at the same time as construction of the Proposed Scheme. It was agreed that the Applicant would seek to agree an approach with legal advisors and let SDC and NYCC know.
Email - 14 April 2022	Selby District Council North Yorkshire County Council	An email was sent to SDC and NYCC with the approach for agreeing the phasing of the FGD. Two options were put forward by the Applicant. The first would be to set out the phasing in an SoCG, and the second would be to secure the phasing via a requirement in the dDCO, which would reflect the ES assumptions in terms of the FGD. SDC responded on the 4 May 2022 confirming that an SoCG would not be sufficient to deal with the phasing satisfactorily. They asked for further detail regarding the wording on the DCO Requirement.
Email - 5 May 2022	Selby District Council	Following the email from SDC on 4 May 2022, the Applicant responded via email with the draft requirement text, along with the suggestion that this is discussed further post-submission.

18.3.2. An EIA Scoping Opinion was received by the Applicant from PINS on behalf of the Secretary of State (SoS) on 26 February 2021, including formal responses from Statutory Consultees. The responses from PINS in relation to Cumulative Effects and how these requirements are addressed by the Applicant are set out in **Appendix 4.2** (document reference 6.3.4.2).

18.4. SCOPE OF THE ASSESSMENT

18.4.1. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 4 (EIA Methodology)** (document reference 6.1.4)**.**

18.4.2. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

ELEMENTS SCOPED OUT OF THE INTRA-PROJECT COMBINED EFFECTS AND INTER-PROJECT CUMULATIVE EFFECTS ASSESSMENTS

18.4.3. The elements shown in **Table 18.2** have not been considered for assessment within this Chapter.

Table 18.2 - Elements Scoped Out of the Intra-project Combined Effects and Inter-project Cumulative Effects Assessments

Element Scoped Out	Justification
Chapter 5 (Traffic and Transport) (document reference 6.1.5)	Inter-project Cumulative Effects The 2026 baseline traffic against which the effects of construction traffic have been assessed and reported in **Chapter 5 (Traffic and Transport)** of this ES and includes any traffic that would be generated by committed or 'other developments'. The assessment of construction traffic is therefore inherently cumulative. The effects of operational traffic have been considered and concluded that traffic flows would be too low to give rise to significant effects. As such, there is no separate assessment of cumulative traffic and transport effects included within these cumulative effects chapter**.**
Chapter 11 (Ground Conditions) (document reference 6.1.11)	Inter-project Cumulative Effects There are not considered to be any cumulative effects on Ground Conditions from the Proposed Scheme and 'other developments' as shown on **Figure 18.1 (Short of List of 'Other Developments' considered within the Cumulative Impact Assessment)** (document reference 6.2.18.1). A number of 'other developments' have been identified within the immediate vicinity of the Proposed Scheme, however, for these identified 'other developments', any contamination will be identified under planning conditions and will be appropriately remediated in line with primary legislation and best practice as detailed in **Chapter 11 (Ground Conditions)** of this ES. Additionally, any agricultural land and soils which fall within identified 'other developments' will be managed appropriately under planning conditions and best practice.

Element Scoped Out	Justification
	Therefore, these identified Committed Developments are not considered likely to affect or create cumulative effects to identified sensitive receptors, including agricultural soils within the Order Limits and Study Areas (250 m and 1 km).
Chapter 14 (Climate Change Resilience) (document reference 6.1.14)	Intra-project Combined Effects The Climate Change Resilience assessment looks at the potential impacts of environmental change on the Proposed Scheme, rather than impacts of the Proposed Scheme on the environment: the receptor for the resilience assessment is the Proposed Scheme. As such, no assessment of intra-project combined effects will be undertaken, as there are no receptors in common with other assessments. Inter-project Cumulative Effects In terms of inter-project cumulative effects, the effect of other proposed developments in the vicinity of the Proposed Scheme in relation to flood risk and drainage systems have been assessed in **Chapter 12 (Water Environment)** of this ES (document reference: 6.1.12). No other cumulative effects have been identified.
Chapter 15 (Greenhouse Gases) (document reference 6.1.15)	Consideration of cumulative GHG emissions is inherent in the assessment as GHG emissions of the Proposed Scheme are assessed against various contextual scales, such as sector and local authority policies and UK carbon budgets. This includes comparing the Proposed Scheme GHG emissions against the annual emissions of Selby and North Yorkshire and the UK carbon budgets. This is detailed in **Section 15.2** of **Chapter 15 (Greenhouse Gases).** No further assessment is therefore reported in this chapter. Intra-project Combined Effects The combined impact of GHG emissions and other environmental effects of the Proposed Scheme on local receptors is not considered. This is because the effect of GHG emissions (climate change) is global – impacting human and natural ecosystems worldwide - and not restricted to nearby receptors which are impacted by the other environmental effects of the Proposed Scheme. Inter-project Cumulative Effects

Element Scoped Out	Justification
	The cumulative effect of the GHG emissions resulting from the Proposed Scheme and GHG emissions from any 'other developments' have been considered in the context of the cumulative emissions inherent to the carbon budget for Selby and North Yorkshire in **Chapter 15 (Greenhouse Gases)** of this ES.
Chapter 17 (Major Accidents and Disasters) (MA&D) (document reference 6.1.17)	Intra-project Combined Effects The MA&D assessment has implicitly considered interactions with external factors (such as Intra-project Combined effects) which may impact on the study area. The assessment approach for MA&D, which considers the vulnerability of the Proposed Scheme to MA&D events, does not assess potential cumulative effects on sensitive receptors because A MA&D event, is a rare, isolated event, which would not be anticipated to act together with other impacts. Inter-project Cumulative Effects The MA&D assessment (**Chapter 17 (Major Accidents and Disasters)**) of this ES has, by its very nature, has implicitly considered interactions with external factors such as other proposed developments which may impact on the study area. Currently, there are no known proposed developments which are considered to increase the vulnerability of the Proposed Scheme to the risk of major accidents and / or disasters. Nonetheless, the Applicant would, subject to the granting of the DCO and the commencement of construction, liaise with the proponents of other proposed developments, should they be built, to control cumulative risks in addition to controls established by any granted DCOs.

Elements Scoped into the Intra-project Combined Effects and Inter-project Cumulative Effects Assessments

Intra-project Combined Effects (Construction and Operation Phase)

18.4.4. The following elements are considered to have the potential to give rise to likely significant intra-project combined effects during construction and / or operation of the Proposed Scheme and have therefore been considered within this assessment:

a. **Chapter 5 (Traffic and Transport)**;
b. **Chapter 6 (Air Quality)** (document reference 6.1.6);
c. **Chapter 7 (Noise and Vibration)** (document reference 6.1.7);
d. **Chapter 8 (Ecology)** (document reference 6.1.8);

e. **Chapter 9 (Landscape and Visual Amenity)** (document reference 6.1.9);
f. **Chapter 10 (Heritage)** (document reference 6.1.10);
g. **Chapter 11 (Ground Conditions)**;
h. **Chapter 12 (Water Environment)** (document reference 6.1.12);
i. **Chapter 13 (Materials and Waste)** (document reference 6.1.3); and
j. **Chapter 16 (Population, Health and Socio-economics)** (document reference 6.1.16).

Inter-project Cumulative Effects (Construction and Operation Phase)

18.4.5. The following elements are considered to have the potential to give rise to likely significant inter-project cumulative effects during construction and / or operation of the Proposed Scheme and have therefore been considered within this assessment:

a. **Chapter 6 (Air Quality);**
b. **Chapter 7 (Noise and Vibration);**
c. **Chapter 8 (Ecology);**
d. **Chapter 9 (Landscape and Visual Amenity);**
e. **Chapter 10 (Heritage);**
f. **Chapter 12 (Water Environment);**
g. **Chapter 13 (Materials and Waste); and**
h. **Chapter 16 (Population Health and Socio-economics).**

18.5. ASSESSMENT METHODOLOGY

18.5.1. The methodology for inter-project cumulative effects has broadly followed PINS Advice Note 17: Cumulative Effects Assessment (Planning Inspectorate, 2019) and has been informed by professional experience.

DECOMMISSIONING PHASE

18.5.2. At the end of the 25-year period, the facility may have some residual life remaining and an investment decision would be made as to whether the operational life of the Proposed Scheme would be extended. If it is not appropriate to continue operation, the Proposed Scheme would be decommissioned. For intra-project combined effects, it is considered that cumulative effects from decommissioning would be similar to, and no worse than, effects experienced during construction, following the implementation of a Decommissioning Environmental Management Plan. As such a separate assessment for decommissioning has not been carried out.

18.5.3. For inter-project cumulative effects, as the Proposed Scheme has a design life of 25 years, it is considered that there is too much uncertainty about other projects that would act cumulatively at that time in the future to be able to carry out an assessment.

INTRA-PROJECT COMBINED EFFECTS

18.5.4. The approach to the assessment of intra-project combined effects considers the changes in baseline conditions at common sensitive receptors i.e., those receptors that have been assessed by more than one technical topic as a result of the Proposed Scheme during construction and operation. For example, a residential property could be exposed to changes in noise levels and air quality as a result of the construction of the Proposed Scheme.

18.5.5. For a scheme of this type, and with regard to the assessment undertaken, it is anticipated that there could be the potential for significant intra-project combined effects resulting from the interactions between the sensitive receptors.

18.5.6. The potential intra-project combined effects would be identified within the assessment by reviewing the likely significant residual effects on common sensitive receptors identified in the ES. The grouping of the residual effects on each receptor is outlined in **Appendix 18.3 (Intra-project Effects Screening Matrix)** (document reference 6.3.18.3). Following this, the significance of the residual effects would be determined using professional judgement and the conclusions of the technical topics and technical specialists. An outline of the significance criteria used for this assessment is summarised in **Table 18.5** below.

18.5.7. The following environmental receptor groups have been identified and considered in this assessment to have potential for more than one type of impact to be experienced by a single receptor:

- **a.** Residents living near the Order Limits, including isolated houses and the villages of Drax, Camblesforth and Barlow;
- **b.** Users of Public Rights of Ways (PRoWs);
- **c.** Controlled Waters; and
- **d.** Statutory and Non-statutory designated sites and Biodiversity Receptor Modelling sites.

18.5.8. In determining whether an effect is considered significant (see **Table 18.5** below), effects of '**minor' or above** (e.g., worse) significance are taken into consideration, to account for the potential for multiple 'non-significant effects' to combine to result in an overall significant intra-project combined effect (for example the potential for minor effects to result in a combined effect).

18.5.9. An overall assessment of the intra-project combined effects on the common sensitive receptors identified above has been made using professional judgement and the technical information provided in **Chapters 5-13 and 16** of this ES.

INTER-PROJECT CUMULATIVE EFFECTS

18.5.10. The approach to the assessment of inter-project cumulative effects considers the effects of the Proposed Schemes and one or more committed development applications ('other developments') on common sensitive receptors.

18.5.11. PINS Advice Note 17 (Planning Inspectorate, 2019) sets out a four-stage approach to the assessment of inter-project cumulative effects:

a. **Stage 1**: Establish the Zone of Influence (ZOI) and long list of 'other developments';
b. **Stage 2**: Identify short list of 'other development' for inter-project cumulative effects assessment;
c. **Stage 3**: Information gathering for 'other developments'; and
d. **Stage 4**: Assessment of inter-project cumulative effects.

18.5.12. The assessment methodology adopted for the Proposed Scheme has broadly followed the four-stage criteria as set out within PINS Advice Note 17 (Planning Inspectorate, 2019). The approach is set out below.

Stage 1 - Establish the Zone of Influence (ZOI) and Long List of 'Other Developments'

18.5.13. Given the scope and scale of the Proposed Scheme and associated works, the Stage 1 activities focus on establishing the likely ZOI associated with each of the environmental topics being assessed within the EIA.

18.5.14. The ZOI's have been defined by taking into account relevant topic guidance and the geographic scope of the potential impacts relevant to each technical topic in **Chapters 6-13 and 16** of this ES. Professional judgement and experience has also been utilised to aid in defining the ZOI's.

18.5.15. When defining the ZOIs, consideration was given for the potential for the developments from the long list to generate cumulative effects from the Proposed Scheme based on their location, scale and timescales for construction and operation.

18.5.16. **Table 18.3** contains the ZOIs for each technical topic.

Table 18.3 - Zone of Influence (ZOI) for Technical Topics

Chapter	ZOI
6 (Air Quality)	**Construction:** 500 m from the Order Limits. **Operation:** The ZOI for air quality is 15 km from the Proposed Scheme Main Stack. However, potentially large emitting plant outside of this distance, specifically associated with Keadby 2 and Keadby 3 (22 km from Site) that could act cumulatively with the Proposed Scheme were also included. Additionally, following Statutory Consultation responses from Doncaster Council, an energy from waste plant in Kirk Sandall (21 km from Site), operational emissions from which could have cumulative air quality impacts on human and ecological receptors within the operational phase study area was also included.

Chapter	ZOI
	Refer to **Chapter 6 (Air Quality)** for more information.
7 (Noise and Vibration)	**Construction**: The construction ZOI is defined as 500m from the Order Limits. **Operation**: The operation ZOI is defined as a 2km radius from the Order Limits. Refer to **Chapter 7 (Noise and Vibration)** for more information.
8 (Ecology)	Construction and Operation: The ZOI for internationally and nationally designated sites is 15 km from the Proposed Scheme Main Stack. However potentially large emitting plant outside of this distance, specifically associated with Keadby 2 and Keadby 3 (22 km from Site) that could act cumulatively with the Proposed Scheme were also included. Additionally, following Statutory Consultation responses from Doncaster Council, an energy from waste plant in Kirk Sandall (21 km from Site), operational emissions from which could have cumulative air quality impacts on human and ecological receptors within the operational phase study area was also included. 2 km from the Order Limits for non-statutory designated sites. 1 km from the Order Limits for protected and notable species. The ZOI for the Phase 1 Habitat Survey was confined to the Order Limits. Refer to **Chapter 8 (Ecology)** for more information.
9 (Landscape and Visual Amenity)	Construction and Operation: 3 km from the Order Limits for key landscape features and assets which contribute to character, covering heritage and biodiversity assets and 3 km for visual amenity. Refer to Chapter 9 Landscape and Visual Amenity for more information.
10 (Heritage)	Construction and Operation: 10 km from the Order Limits has been applied for medium to high value designated Heritage Assets (HA). 1 km from the Order Limits for HAs of low value.

Chapter	ZOI
	500 m inner study area within the Order Limits for non-designated HA's. Refer to **Chapter 10 (Heritage)** for more information.
12 (Water Environment)	Construction and Operation: 1 km from the Order Limits for indirect impacts to surface water features. 0.5 km from the Order Limits for the assessment of direct impacts to surface water features. Two ZOIs have been identified for surface water feature due to the hydraulic connectivity between surface water features. Based on professional experience and judgement, direct surface water impacts are unlikely to occur beyond 0.5 km (associated with overland migration of pollutants directly to a surface water feature, changes in overland flows and flood risk) with indirect impacts being unlikely to occur beyond 1 km 1 km from the Order Limits for groundwater receptors including groundwater waterbodies or water dependent conservation sites. Refer to **Chapter 12 (Water Environment)** for more information.
13 (Materials and Waste)	Construction and Operation: The ZOI extends to the availability of construction materials and the capacity of waste management facilities within the Yorkshire and the Humber region of England (Humberside, North Yorkshire, South Yorkshire, and West Yorkshire). Refer to **Chapter 13 (Materials and Waste)** for more information.
16 (Population and Health)	Construction and Operation: For the purposes of the assessment of cumulative effects for Population and Human Health, the ZOI has been restricted to 15 km. It is acknowledged that there may be cumulative effects with 'other developments' beyond this 15 km, the ZOI has been restricted to 15 km to allow for a meaningful assessment. This 15 km ZOI is primarily associated with employment generation. 500 m from the Order Limits for disruption to local businesses.

Chapter	ZOI
	Construction: The towns of Selby, Goole, Camblesforth, and a catchment of 2 km from the Order Limits for increased demand on accommodation and community facilities. Refer to **Chapter 16 (Population, Health and Socio-economics)** for more information.

18.5.17. In line with PINS Advice Note 17 (Planning Inspectorate, 2019), the search area for the long list of 'other developments' is the largest ZOI of the technical topics, as described in **Table 18.3**. The search area is therefore 15 km from the Proposed Scheme but also includes Keadby 2 and Keadby 3 (22 km from Site); an energy from waste plant in Kirk Sandall (21 km from Site); and proposed developments which form part of the Zero Carbon Humber Partnership located beyond this 15 km study area due to their interconnected nature with the Proposed Scheme.

18.5.18. The long list as detailed in **Appendix 18.1 (Long List of Other Developments)** (document reference 6.3.18.1) was developed by carrying out a desk study using publicly available online information at the time of writing.

Local Authority and Major Infrastructure Developments

18.5.19. Taking into account Table 2 of AN17, which acknowledges that the availability of information necessary to assess cumulative effects will depend on the current status of "other existing development and / or approved development", the criteria detailed below have been applied when identifying Local Authority and Major Infrastructure Developments to be included in the assessment. It was considered that planning applications that did not fit this criteria were of a scale (in terms of potential magnitude of impact) or type that would not result in cumulative effects with the Proposed Scheme. For planned developments within the above search area, the following search criteria has therefore been applied:

a. Any Nationally Significant Infrastructure Projects (NSIPs) Development Consent Orders (DCO) in England, as available on the Register of Applications on the National Infrastructure Planning Portal in the last five years that are within the 15 km study area;

b. Planning applications contained on the LPA portals (Selby District Council, Doncaster Metropolitan Borough Council and East Riding of Yorkshire Council), as listed in **paragraph 18.5.37** in the last five years which are classified as 'major developments' in accordance with the Town and Country Planning (Development Management Procedure) (England) Order 2015 which may have the potential to have a cumulative impact with the Proposed Scheme;

c. Sites allocated 'major development' as part of LPA Local Plans and / or Core Strategies. These are listed in **Section 18.5**. This search incorporated the adopted and proposed / draft Local Plans / Core Strategies which have planning in principle and therefore can exceed the five-year limit set for the other search criteria, i.e., sites allocated more than five years ago. Draft allocations in emerging Local Plans are subject to change as the Local Plan progresses and nears adoption;

d. Other relevant development plans and projects (including Transport and Work Act Orders and Waste and Minerals Plans); and

e. The inclusion of Zero Carbon Humber Partnership developments. Zero Carbon Humber refers to a consortium of leading energy and industrial companies with a shared vision to transform the Humber region into the UK's first net-zero carbon cluster by 2040. Projects within the Zero Carbon Humber cluster include the Hydrogen to Humber Saltend Project, a pipeline network developed by National Grid Ventures, Centrica Storage's Easington site and Keadby 3, amongst others. The Proposed Scheme is interconnected with the Zero Carbon Humber Partnership proposals and should therefore be assessed in relation to these other proposals.

Certainty of 'Other Developments'

18.5.20. The criteria for 'assigning certainty for 'other developments' to be included in the intra-project cumulative effects assessment is described below in **Table 18.4** below which is based upon the PINS Advice Note 17 (Planning Inspectorate, 2019). It is acknowledged that there is a decreasing level of detail likely to be available from Tier 1 to Tier 3.

Table 18.4 - Criteria for Identifying 'Other Developments' for Inclusion in the Inter-project Cumulative Effects Assessment

Tier	Criteria	
Tier 1	~ Projects under construction; ~ Permitted applications whether under the Planning Act (PA2008) or other regimes, but not yet implemented; and ~ Submitted applications whether under the PA2008 or other regimes, but not yet determined.	Decreasing level of information in the public domain available ↓
Tier 2	~ Projects on the Planning Inspectorate's Programme	

Tier	Criteria	
	of Projects where a Scoping Report has been submitted.	
Tier 3	~ Projects on the PINS Programme of Projects where a Scoping Report has not been submitted; ~ Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there is limited information available on the relevant proposals; and ~ Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.	

Stage 2 Establishing a Short List of 'Other Developments'

18.5.21. Following the compilation of the long list, the results were filtered to identify suitable other existing and / or approved developments to be taken forward to the inter-project cumulative effects assessment. These filtered 'other developments' formed the short list.

18.5.22. The criteria that were used to identify the short-list is based on professional judgement, and was used to further classify 'major development', is as follows:

a. Residential developments must comprise of 10 + dwellings and lie within 15 km of the Proposed Scheme;

b. Nationally Significant Infrastructure Projects must lie within 15 km of the Proposed Scheme, with the exception of projects proposed as part of Zero Carbon Humber;

c. Retail or commercial developments over 500 sqm and within 15 km of the Proposed Scheme;

d. Mineral and waste developments within 15 km of the Proposed Scheme;

e. Transport and infrastructure developments that were within 15 km of the Proposed Scheme;

f. Developments which are within 15 km of the Proposed Scheme for air quality and, as detailed in **Table 18.3** above, potentially large emitting plant outside of this distance, specifically associated with Keadby 2 and Keadby 3 (22 km from Site) and an energy from waste plant in Kirk Sandall (21 km from Site);

g. The temporal scope of developments, e.g., overlap of construction and operation phases with the Proposed Scheme; and

h. Publicly available information has been used to carry out a proportionate cumulative assessment. Where information was not publicly available, efforts were made to source information directly from the developer, e.g., in the case of the National Grid Carbon Humber Low Carbon Pipelines (Long List ID12).

18.5.23. It is noted that a small number of 'other developments' that have been considered in the long list were not carried forward to the short list on the basis that they are no longer being progressed (for example, planning permission refused).

18.5.24. Professional judgement was used to develop the above criteria. In line with Advice Note 17 (Planning Inspectorate, 2019) professional judgement was also applied to support the exclusion of projects which exceed the thresholds, but which may not give rise to discernible cumulative effects on receptors, and vice versa. Where developments do not meet the above criteria but have the potential to generate cumulative effects, professional judgement was used to determine whether to include developments from the longlist in the short list. The reasons for including or excluding 'other developments' is provided in **Appendix 18.1 (Long List of Other Developments)**.

18.5.25. The proximity of the committed development, the timing of works and the associated impacts / effects of the developments has been taken into account where possible when determining the potential significance of inter-project cumulative effects as part of the ES.

18.5.26. The 'short list' is presented in **Appendix 18.2 (Short List of Other Developments)** (document reference 6.3.18.2) of this ES, which details each project's current status and provides comment regarding the temporal and spatial scope of the 'other developments', along with how the 'other developments' have been filtered using the criteria set out in **paragraph 18.5.22** above.

18.5.27. All the 'other developments' identified in **Appendix 18.2 (Short List of Other Developments)** of this ES are of such a nature and proximity to the Scheme to have the potential to generate significant cumulative effects when considered in context with the Proposed Scheme.

Stage 3 – Information Gathering

18.5.28. This stage involves collating and reviewing the available information relating to the 'other developments' on the short list in order to inform the Stage 4 assessment. This includes location, design information, programme for construction, operation and decommissioning (if relevant) and likely potential environmental effects.

18.5.29. Information gathered at this stage was primarily from the public domain (including the LPA planning portals and the Planning Inspectorate website), further details provided in **paragraph 18.5.36.**

Stage 4 - Assessment of Inter-project Cumulative Effects

18.5.30. The assessment of the inter-project cumulative effects is based upon the residual effects identified in the technical topics of the ES as well as available information for the 'other developments'. These are detailed in **Table 18.8** below. A summary of 'other developments' identified per topic is provided in **Appendix 18.3 (Intra-project Effects Screening Matrix)** (document reference 6.3.18.3) of this ES.

18.5.31. Each 'other development' on the short list has been assessed according to each technical topic ZOI in which it is present. The consideration of inter-project effects has been approached on a topic-by-topic basis, dependent on the availability of relevant information. Where environmental information is not present within available documentation, a high-level appraisal using publicly available sources has been undertaken to supplement the available information. If insufficient information is available in the public domain, this has been clearly outlined in **Appendix 18.4 (Justification of Scoping)** (document reference 6.3.18.4). The assessment of inter-project cumulative effects is qualitative, unless otherwise stated. It will consider the following:

a. Combined magnitude of change;

b. Sensitivity / value / importance of the receptor or receiving environment to change; and /or

c. Duration and reversibility of effect.

18.5.32. The inter-project cumulative effects assessment only considers those receptors that would experience a residual effect in association with the Proposed Scheme. For receptors where the Proposed Scheme has negligible / neutral effects, it is considered that such receptors could not experience inter-project cumulative effects.

ASSESSMENT OF SIGNIFICANCE

18.5.33. The significance of intra-project combined effects and inter-project cumulative effects is determined using professional judgement and has been informed by the guidance in **Table 18.5** below which is adapted from DMRB LA 104 (National Highways, 2020) and is based on professional experience.

18.5.34. Each of the technical assessments reported in the ES has identified effects which may occur as result of the Proposed Scheme, ranging from no change, negligible or slight (not significant) to moderate and major (significant). Multiple effects upon one

or more common receptors (intra-project combined effects) or integrated with ‘other developments’ (inter-project cumulative effects) could theoretically interact to result in a combined effect which is more or less significant than the effects individually. **Table 18.5** below outlines the significance criteria used in determining intra-project combined and inter-project cumulative significance.

Table 18.5 – Intra-project Combined Effects and Inter-project Cumulative Significance of Effect Definition

Significance	Typical Effect / Impact
Very Large (significant)	Effects that are material in the decision-making process. **Adverse Effects:** ~ The loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements; on receptors of very high importance and rarity, international scale and very limited potential for substitution or effects on high importance and rarity, national scale, and limited potential for substitution; and ~ Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements on receptors of very high importance and rarity, international scale and very limited potential for substitution. **Beneficial Effects:** ~ Large scale or major improvement of resource quality, extensive restoration; major improvement of attribute quality; on receptors of very high importance and rarity, international scale and very limited potential for substitution or effects on high importance and rarity, national scale, and limited potential for substitution; and ~ Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality; on receptors of very high importance and rarity, international scale and very limited potential for substitution.
Large (significant)	Effects that are likely to be material in the decision-making process. **Adverse Effects:** ~ The loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements; on receptors of medium or high importance and rarity, national or regional scale, limited potential for substitution; ~ Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements on receptors of high or very high importance and rarity, international or national scale and very limited or limited potential for substitution; and ~ Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements: on receptors of very high importance and rarity, international scale and very limited potential for substitution. **Beneficial Effects:** ~ Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality on receptors of medium or high importance and rarity, regional scale, limited potential for substitution; ~ Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality; on receptors of high or very high importance and rarity, international or national scale and very limited or limited potential for substitution; and ~ Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of adverse impact occurring; on receptors of very high importance and rarity, international scale and very limited potential for substitution.
Moderate (significant)	Effects that are considered to be material decision-making factors. **Adverse Effects:** ~ Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements; on receptors of low, medium or high importance and rarity, regional scale, limited potential for substitution in some cases; ~ Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements; on receptors of medium or high importance and rarity, national or regional scale, limited potential for substitution; and ~ Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements; on receptors of high and very high importance and rarity, international or national scale and very limited or limited potential for substitution.

Significance	Typical Effect / Impact
	Beneficial Effects: ~ Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality; on receptors of low, medium or high importance and rarity, regional or local scale, limited potential for substitution in some cases; ~ Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality; on receptors of medium or high importance and rarity, national or regional scale, limited potential for substitution; and ~ Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of adverse impact occurring; on receptors of high or very high importance and rarity, national or international scale and very limited or limited potential for substitution.
Slight (not significant)	Effects that are not material in the decision-making process. **Adverse Effects:** ~ Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements; on receptors of very low, low or medium importance and rarity, local scale; ~ Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements; on receptors of very low, low or medium importance and rarity, local scale; ~ Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements; on receptors of very low, low, medium or high importance and rarity, national, regional and local scale, and limited potential for substitution in some cases; and ~ Very minor loss of detrimental alteration to one or more characteristics, features or elements; on receptors very high, high, medium or low importance and rarity, international, national, regional or local scale and very limited or limited potential for substitution in some cases. **Beneficial Effects:** ~ Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality; on receptors of very low, low or medium importance and rarity, local scale; ~ Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality; on receptors of very low, low or medium importance and rarity, local scale; ~ Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of adverse impact occurring; on receptors of low, medium or high importance and rarity, national, regional or local scale, limited potential for substitution in some cases; and ~ Very minor benefit to or positive addition to one or more characteristics, features or elements; on receptors of low, medium, high or very high importance and rarity, local, national or international scale and very limited potential for substitution in some cases.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

METHOD OF BASELINE DATA COLLECTION

Desk Study

18.5.35. The inter-project cumulative effects were undertaken via a desk-based exercise using publicly available online information at the time of writing (up to and including February 2022).

Site Visit and Surveys

18.5.36. For the purpose of this combined and cumulative effects assessment, no Site visit or survey was required.

Guidance and Data

18.5.37. The following guidance documents and data sources have been used during the preparation of this chapter:

Guidance

a. PINS Advice Note 9: Rochdale Envelope (Planning Inspectorate, 2018); and

b. PINS Advice Note 17: Cumulative Effects Assessment (Planning Inspectorate, 2019).

Data

a. Planning Inspectorate Programme of Projects (Planning Inspectorate, 2022);

b. Selby District Council Planning Portal (Selby District Council, 2022);

c. Selby District Council New Local Plan (Selby District Council, 2021);

d. North Yorkshire County Council Minerals and Waste Joint Plan (North Yorkshire Council Council, 2018);

e. Doncaster Metropolitan Borough Council Planning Portal (Doncaster Metropolitan Borough Council, 2022);

f. East Riding of Yorkshire Council Planning Portal (East Riding of Yorkshire Council, 2022); and

g. Zero Carbon Humber Partnership (Zero Carbon Humber, 2022).

Assessment Assumptions and Limitations

18.5.38. The following assumptions and limitations apply to this chapter:

Assumptions

a. The assessment of intra-project combined effects and inter-project cumulative effects resulting from the Proposed Scheme has focused on the residual effects from the construction and operational phase following the implementation of mitigation measures. Decommissioning has not been considered within this assessment. There is an assumption that all proposed mitigation measures identified in **Chapters 5-17** of this ES would be secured pursuant to the requirement for a Decommissioning Environmental Management Plan;

b. The data that was used in the Traffic and Transport assessment presented in **Chapter 5** (and subsequently informed noise and air quality assessments) was collected before the Covid-19 pandemic. As a consequence of the pandemic travel patterns have changed drastically in the short-term, and potentially into the medium- and longer-term. Therefore, projects that are now operational were excluded from the original baseline for these chapters and have, as such, been included in the cumulative assessment short list (in **Appendix 18.2 (Short List of Other Developments)**);

c. As described in **Chapter 2 (Site and Project Description)**, the Applicant has full planning permission for the demolition of the redundant Flue Gas Desulphurisation (FGD) Plant and associated restoration works at Drax Power Station (2020/0994/FULM). The decommissioning and demolition works of Absorber Units 4, 5 and 6 are scheduled to take place prior to the start of the construction of the Proposed Scheme, which will be included in the baseline of the assessment, whilst the demolition of Absorber Units 1, 2 and 3 are assumed to take place following the completion of the Proposed Scheme. The demolition of Units 1, 2 and 3 are therefore assessed in this Chapter and are included in the short list as ID12; and

d. For the assessment of inter-project cumulative effects, the determination of whether an application was considered for inclusion in the short list, where construction timescales were not available, a 'worst-case' assumption was taken that the construction timescale of the 'other development' would overlap with the Proposed Scheme.

Limitations

a. The short list for this inter-project cumulative effects assessment was completed on 28 February 2022, any 'other developments' that have been submitted to the local authority / PINS since this date have not been included in this assessment. As part of the DCO Acceptance and Examination process it is understood that details of 'other developments' are likely to come forward. Updates to the assessment will be undertaken following submission of the DCO Application, if necessary;

b. The inter-project cumulative effects assessment has been based on publicly available data which is not possible to verify and is limited in some cases;

c. Where a planning application has been submitted but no environmental information supports the application, this was not taken forward into the short list as it was not considered that a robust and proportionate environmental assessment could be carried out. However, as detailed in the bullet above, should environmental information come forward that would enable such as assessment to be carried out, this will be reviewed and the assessment updated, as necessary. It should be noted that this applies to Where sufficient environmental information was not available for a particular topic for developments on the short list, it was not possible to carry out an assessment and these were therefore scoped out of further assessment for that topic;

d. the National Grid Ventures pipeline (application reference EN070006) which is included on the **Long List of 'Other Developments'** (**Appendix 18.1**). At the time of writing, there was no environmental information available for this development so a robust and proportionate inter-project cumulative assessment was unable to be carried out. A Scoping Report was however subsequently submitted to PINS on 11 April 2022. Following submission of the draft DCO, there will be an opportunity to carry out a cumulative inter-project assessment for this development; and

e. Any limitations that were encountered during the individual technical assessments are detailed within **Chapters 5-17** of this ES (document references 6.1.5 -6 .1.17).

18.6. STUDY AREA

18.6.1. The following study areas have been identified for this assessment:

INTRA-PROJECT COMBINED EFFECTS

18.6.2. The study areas used to identify the receptors for the assessment of intra-project combined effects are those detailed in the relevant individual topic **Chapters 5-17** of this ES. It is the receptors that form the basis for the intra-project combined effects assessment.

INTER-PROJECT CUMULATIVE EFFECTS

18.6.3. The study areas for the assessment of inter-project cumulative effects uses the ZOI for each topic as detailed in **Table 18.3** above. The study areas / ZOI are shown on **Figure 18.1 (Short of List of 'Other Developments' considered within the Cumulative Impact Assessment).**

18.7. BASELINE CONDITIONS

EXISTING BASELINE

18.7.1. The baseline conditions for this chapter are as described in the relevant topic **Chapters 5-17** of this ES.

FUTURE BASELINE

18.7.2. The future baseline is presented within each technical chapter (**Chapters 5-17** of this ES).

18.8. ASSESSMENT OF INTRA-PROJECT COMBINED EFFECTS

18.8.1. Intra-project combined effects are those that may arise when several different impacts resulting from the Proposed Scheme have the potential to affect a single receptor.

18.8.2. A review of the technical assessments reported in **Chapters 5-13** and **16** of this ES has been undertaken in order to identify new or different environmental effects, or

those that could combine to result in an effect of greater significance upon one or more common receptors. A screening matrix was then produced and is presented in **Appendix 18.3 (Intra-project Effects Screening Matrix)** (document reference 6.3.18.5). Residual effects identified within multiple chapters on the same receptor were then taken forward to the final stage of assessment. These combined effect interactions are detailed in **Tables 18.6 and 18.7** below.

18.8.3. When considering combined effects, the mitigation measures set out in **Chapters 5-13** and **16** of this ES must be taken into account. Therefore, only residual effects (post mitigation) are considered.

Table 18.6 - Cumulative Effects Assessment of Intra-project Combined Effect Interactions (Construction)

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
Residents living in properties with western facing views (individual properties off Wren Hall Lane, Carr Lane, Main Road)	**Chapter 6 (Air Quality)**	Dust deposition on sensitive properties and increase in ambient PM_{10} levels at human receptors resulting from emissions associated with Proposed Scheme construction and decommissioning phase activities.	Negligible Not Significant T / D/ ST	Residents living in these properties would experience changes to their views during construction which would have a minor adverse (not significant) effect. This would be caused by visible construction activities. They may also experience noise and vibration impacts from construction activities, which are predicted to be neutral to slight; and potentially negligible effects from dust deposition.	The overall combined effect is predicted to be no worse than temporary **Minor Adverse (not significant)**.
	Chapter 7 (Noise and Vibration)	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST		
	Chapter 9 (Landscape and Visual Amenity)	The presence of tall construction plant / cranes and the gradual emergence of the Proposed Scheme (Absorber Columns 95 m and Regenerators 70 m maximum height parameters) would be perceived west and north-west of the main turbine / boiler house and beyond the northern cooling towers. Temporary lighting would create a perceptible change in lighting at night during the construction phase.	Minor Adverse (not significant) T / D / ST		
Residents living in properties with western facing views off Pear Tree Avenue.	**Chapter 6 (Air Quality)**	Dust deposition on sensitive properties and increase in ambient PM_{10} levels at human receptors resulting from emissions associated with Proposed Scheme construction and decommissioning phase activities.	Negligible Not Significant T / D/ ST	Residents living in these properties would experience changes to their views during construction which would have a moderate adverse (not significant) effect. This would be caused by visible construction activities. They may also experience noise and vibration impacts from construction activities, which are predicted to be neutral to slight; and potentially negligible effects from dust deposition.	The overall combined effect is predicted to be no worse than temporary **Moderate Adverse (not significant)**.
	Chapter 7 (Noise and Vibration)	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST		
	Chapter 9 (Landscape and Visual Amenity)	The presence of tall construction plant / cranes and the gradual emergence of the Proposed Scheme (Absorber Columns 95 m and Regenerators 70 m maximum height parameters) would be perceived west and north-west of the main turbine / boiler house	Moderate Adverse (significant) T / D / ST		

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
		and beyond the northern cooling towers. Temporary lighting would create a perceptible change in lighting at night during the construction phase.			
Residents living in properties with eastern facing views (Camela Lane / Clay Lane)	**Chapter 6 (Air Quality)**	Dust deposition on sensitive properties and increase in ambient PM_{10} levels at human receptors resulting from emissions associated with Proposed Scheme construction and decommissioning phase activities.	Negligible Not Significant T / D/ ST	Residents living in these properties would experience changes to their views during construction which would have a minor moderate adverse (significant) effect. This would be caused by visible construction activities. They may also experience noise and vibration impacts from construction activities, which are predicted to be neutral to slight, and potentially negligible effects from dust deposition.	The overall combined effect is predicted to be no worse than temporary **Moderate Adverse (significant).**
	Chapter 7 (Noise and Vibration)	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST		
	Chapter 9 (Landscape and Visual Amenity)	The presence of tall construction plant / cranes and the gradual emergence of the Proposed Scheme (Absorber Columns 95 m and Regenerators 70 m maximum height parameters) would be perceived west and north-west of the main turbine / boiler house and beyond the northern cooling towers. Temporary lighting would create a perceptible change in lighting at night during the construction phase.	Minor Adverse at night (not significant) Moderate Adverse during the day (Significant) T / D / ST		
Residents in properties with west and north-west facing views from the settlement of Drax	**Chapter 6 (Air Quality)**	Dust deposition on sensitive properties and increase in ambient PM_{10} levels at human receptors resulting from emissions associated with Proposed Scheme construction and decommissioning phase activities.	Negligible Not Significant T / D/ ST	Residents living in these properties would experience changes to their views during construction which would have a minor adverse (not significant) effect. This would be caused by visible construction activities. They may also experience a combined effect with the noise and vibration impacts from construction activities, which are predicted to be neutral to slight adverse, and potentially	The overall combined effect is predicted to be no worse than temporary **Slight Adverse (not significant).**
	Chapter 7 (Noise and Vibration)	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST		
	Chapter 9 (Landscape and Visual Amenity)	Construction activities associated with the Proposed Scheme would be largely obscured by existing structures within Drax Power	Negligible at night (Not Significant)		

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
		Station. There would be a barely perceptible change in lighting during the construction phase.	Minor Adverse during the day (Not Significant) T / D / ST	negligible effects from dust deposition.	
Residents in properties with north-east facing views from the settlement of Camblesforth	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST	Residents living in these properties would experience changes to their views during construction which would have a minor to moderate adverse (significant) effect. This would be caused by visible construction activities. They may also experience a combined effect with the noise and vibration impacts from construction activities, which are predicted to be neutral to slight adverse.	The overall combined effect is predicted to be no worse than temporary **Moderate Adverse (significant).**
	Chapter 9 (Landscape and Visual Amenity)	Construction activities associated with the Proposed Scheme would be visible to the west of the turbine hall / boiler house in the middle to far distance for properties situated on the northern edge of the village. There would be a perceptible change in lighting during the construction phase.	Minor Adverse at night (not significant) Moderate Adverse during the day (Significant) T / D / ST		
Residents in properties with south-west facing views from the settlement of Barmby on the Marsh and Long Drax	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the construction and decommissioning activities, including construction traffic. Likely vibration effects arising from the construction and decommissioning activities.	Neutral to Slight Not Significant T / I / ST	Residents living in these properties would experience changes to their views during construction which would have a minor adverse (not significant) effect. This would be caused by visible construction activities. They may also experience a combined effect with the noise and vibration impacts from construction activities, which are predicted to be neutral to slight.	The overall combined effect is predicted to be no worse than temporary **Slight Adverse (not significant).**
	Chapter 9 (Landscape and Visual Amenity)	Construction activities associated with the Proposed Scheme would be noticeable in the far distance and in the background of views, close to the River Ouse. There would be a barely perceptible change in lighting during the construction phase.	Minor Adverse (not significant) T / D / ST		
Users of the nearby road network - A645.	**Chapter 5 (Traffic and Transport)**	**Link 3 - A645 (S/E)** Severance, pedestrian amenity, fear and intimidation, highway safety	Slight adverse Not Significant T / D/ ST	Users of the A645 may experience combined effects from both a transport perspective due to severance, pedestrian amenity, fear and intimidation and highway safety, as well as from visual amenity effects due to the	The overall combined effect is predicted to be no worse than temporary **Slight Adverse (not significant).**
	Chapter 9 (Landscape and Visual Amenity)	Road users travelling along the A645 and A161 would be able to see construction activity, especially the taller elements of construction plant / cranes and the gradual	Negligible to Minor Adverse (not significant) T / D / ST		

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
		emergence of the Proposed Scheme, where there are gaps in landform and vegetation		appearance of construction plant.	
Local Employment and Local Businesses	**Chapter 9 (Landscape and Visual Amenity)**	**People visiting and working within Drax** Construction activities associated with the Proposed Scheme would be visible in close proximity where there are direct and unfiltered views.	Minor Adverse (not significant) T / D / ST	There may be negligible to minor adverse effects on views for people visiting and working within Drax, including Drax Golf club, due to views of construction activities. There will however be a moderate beneficial impact as there will be employment opportunities generated as part of the Proposed Scheme.	Overall, it is considered that the combined effect would be no worse than **Slight Adverse** (**not significant)** effect.
	Chapter 9 (Landscape and Visual Amenity)	**Day-time - People visiting and working at Drax Golf Club -** Visitors would be able to see construction activities associated with the Proposed Scheme, beyond the southern cooling towers and above existing mature planting within the golf course extents.	Negligible to Minor Adverse (not significant) T / D / ST		
	Chapter 16 (Population, Health and Socio-economics)	Generation of direct, indirect, and induced employment opportunities (local level) during construction - The Proposed Scheme will generate an estimated 4,500 total net construction jobs per annum, 3,825 of which will be in the local (SDC and ERoY) area. Relative to the size of the local economy there is likely to be a direct, temporary, long-term, moderate beneficial (significant) effect prior to the implementation of mitigation measures.	Moderate Beneficial Significant T/D/LT		

Table 18.7 - Cumulative Effects Assessment of Intra-Project Combined Effect Interactions (Operation)

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
Residents living in properties with western facing views (individual properties off Pear Tree Avenue, Wren Hall Lane, Carr Lane, Main Road)	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the Proposed Scheme during operation, including operational traffic and the post combustion carbon capture technology.	Neutral to Slight Adverse Not significant P / I / LT	A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the implementation of the **Surface Water Drainage Strategy**. Residents may experience residual noise effects due to operational traffic and the	The overall combined effect is predicted to be no worse than **slight adverse (not significant).**
	Chapter 9 (Landscape and Visual Amenity)	Operational visual effects would result from the introduction of the Proposed Scheme beyond the Existing Drax Power Station and associated cooling towers.	Negligible at night (not significant) Minor Adverse during the day (not significant)		

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
			P / D / LT	operation of the Carbon Capture Plant and there could be minor adverse visual effects for residents living off Pear Tree Avenue, Wren Hall Lane, Carr Lane and Main Road due to the introduction of the Proposed Scheme.	
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P/D/LT		
Residents living in properties with eastern facing views (Camela Lane / Clay Lane)	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the Proposed Scheme during operation, including operational traffic and the post combustion carbon capture technology.	Neutral to Slight Adverse Not significant P / I / LT	A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the implementation of the **Surface Water Drainage Strategy**. Residents may experience residual noise effects due to operational traffic and the operation of the Carbon Capture Plant and there could be minor adverse visual effects for residents living off Camela Lane and Clay Lane.	The overall combined effect is predicted to be no worse than **slight adverse (not significant).**
	Chapter 9 (Landscape and Visual Amenity)	Operational effects would result from the introduction of the Proposed Scheme in front of the turbine hall / boiler house and northern cooling towers within Drax Power Station.	Minor Adverse (not significant) P / D / LT		
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P / D / LT		
Residents in properties with south-eastern facing views (Thief Lane)	**Chapter 9 (Landscape and Visual Amenity)**	Operational effects would result from the introduction of the Proposed Scheme beyond Barlow Mound.	Negligible at night (not significant) Minor Adverse during the day (Significant)	A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the	The overall combined effect is predicted to be no worse than **slight**

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
			T / D / ST	implementation of the **Surface Water Drainage Strategy.** Residents living off Thief Lane may also experience minor adverse visual effects.	**adverse (not significant).**
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P/D/LT		
Residents in properties with west and north-west facing views from the settlement of Drax	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the Proposed Scheme during operation, including operational traffic and the post combustion carbon capture technology.	Neutral to Slight Adverse Not significant P / I / LT	Although the visual effect is negligible, there could be a combined effect for residents with west and north-west facing views in Drax village. This is because residents may experience residual noise effects due to operational traffic and the operation of the Carbon Capture Plant. A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the implementation of the **Surface Water Drainage Strategy.**	The overall combined effect is predicted to be no worse than **slight adverse (not significant).**
	Chapter 9 (Landscape and Visual Amenity)	Operational effects would result from the introduction of the Proposed Scheme to the west of the Drax Power Station and would be predominantly obscured by the turbine hall / boiler house and intervening vegetation, where gaps allow the Proposed Scheme would be visible alongside existing features.	Negligible (not significant) P / D / LT		
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P/D/LT		
Residents in properties with north-east facing views from the	**Chapter 7 (Noise and Vibration)**	Likely noise effects arising from the Proposed Scheme during operation, including operational traffic and the post combustion carbon capture technology.	Neutral to Slight Adverse Not significant P / I / LT	A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the	The overall combined effect is predicted to be no worse than **slight**

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
settlement of Camblesforth	**Chapter 9 (Landscape and Visual Amenity)**	Operational effects would result from the introduction of the Proposed Scheme in front of the turbine hall / boiler house and northern cooling towers within Drax Power Station.	Minor Adverse (not significant) P / D / LT	implementation of the **Surface Water Drainage Strategy.** Residents may still experience residual noise effects due to operational traffic and the operation of the Carbon Capture Plant and there could be minor adverse visual effects for residents living in Camblesforth.	**adverse (not significant).**
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P/D/LT		
Residents in properties with south-west facing views from the settlement of Barmby on the Marsh and Long Drax	**Chapter 9 (Landscape and Visual Amenity)**	Operational effects would result from the introduction of the Proposed Scheme to the west of Drax Power Station in the vicinity of the northern cooling towers.	Negligible at night (not significant) Minor Adverse during the day (not significant) P / D / LT	A moderate beneficial effect on local residents has been identified as a result of reduced flood risk with the implementation of the **Surface Water Drainage Strategy.** There could be minor adverse visual effects for residents living in Barmby on the Marsh and Long Drax.	The overall combined effect is predicted to be no worse than **Slight Adverse (not significant).**
	Chapter 12 (Water Environment)	Due to the implementation of the surface water drainage strategy, detailed in **Appendix 12.3 (Surface Water Drainage Strategy)** (document reference 6.3.12.3), surface water discharge from Drax Power Station would be reduced during storm events. Drax Power Station, people and properties elsewhere (including the village of Drax) would experience effects associated with decreases in the rate and volume of surface water runoff from Drax Power Station Site.	Moderate Beneficial Significant P/D/LT		
Statutory and Non-Statutory Designated sites and biodiversity receptor modelling sites	**Chapter 6 (Air Quality)**	Assessment significance screening criteria were exceeded in relation to acid deposition impacts at the named ecological receptors resulting from operational phase pollutant emissions from the Proposed Scheme Main Stack alone. Therefore, potential for significant effects cannot be screened out.	Marginal exceedances of the assessment significance screening criteria remained post-mitigation at Lower Derwent Valley SAC and the SSSIs at Breighton Meadows and Barn Hill Meadows. Therefore, the results of the air quality modelling were	Neutral effects have been identified for Statutory and Non-Statutory Designated sites and biodiversity receptor modelling sites. With the management of habitats as part of mitigation and delivery of BNG for the Proposed	The overall combined effect is expected to be **neutral (not significant).**

Receptor	Chapter	Residual Effects	Residual Significance in Chapter	Combined Effects Assessment Significance	Overall Score
			passed to the Project Ecologist to determine whether or not there is a likely significant effect. The outcomes of this analysis are reported in **Chapter 8 (Ecology)**.	Scheme there would be a combined **neutral (not significant)** effect.	
	Chapter 6 (Air Quality)	Increase in ambient levels of NO_x, NH_3, and SO_2 concentrations, and nitrogen deposition rates at ecological receptors associated with operational phase pollutant emissions from the Proposed Scheme Main Stack alone.	Negligible Not Significant P / D&I / LT		
	Chapter 8 (Ecology)	Statutory Designated Sites of International and National Importance - Alteration and degradation of Annex 1 habitats	Not significant		
	Chapter 8 (Ecology)	Non-statutory designated sites - Alteration and degradation of habitats	Not significant		
	Chapter 8 (Ecology)	Habitats - Reinstatement, creation and enhancement of habitats on and off-site.	Not Significant		

18.9. ASSESSMENT OF INTER-PROJECT CUMULATIVE EFFECTS

18.9.1. This section presents the results from the detailed inter-project cumulative effects assessment (Stage 4 of PINS Advice Note 17 (Planning Inspectorate, 2019)).

18.9.2. A total of 189 ‘other developments’ were included in the long list at Stage 1, see **Appendix 18.1 (Long List of Other Developments)** of this ES. After refining the long list at Stage 2, 74 ‘other developments’ were included in the short list presented in **Appendix 18.2 (Short List of Other Developments),** and which have been included in the assessment of inter-project cumulative effects. The location of these ‘other developments’ taken through to the short list is shown on **Figure 18.1 (Short of List of 'Other Developments' considered within the Cumulative Impact Assessment)** of this ES.

18.9.3. This section considers in turn ‘scoped in’ environmental disciplines and assesses whether effects associated with each short-listed development would be able to interact with the effects associated with the Proposed Scheme in a manner that has the ability to generate potentially significant cumulative effects.

18.9.4. **Appendix 18.4 (Justification of Scoing)** provides further detail from each discipline as to whether they scoped the 'other developments' into the inter-project cumulative effects assessment for their topic.

18.9.5. The full results of the assessment of cumulative effects is presented in **Appendix 18.5 (Cumulative Effects Assessment Matrix)** of this **ES** (document reference 6.3.18.5)**. Table 18.8** presents a summary of these findings, including the likely significant cumulative effects during construction and operation for the environmental topics detailed above.

18.9.6. The assessment presented in **Appendix 18.5 (Cumulative Effects Assessment Matrix)** for Ecology and Air Quality is based on dispersion modelling of the operational emissions in the With Proposed Scheme scenario in combination with operational emissions from Developments 1, 4, 47, and 74.

18.9.7. Where the location of ‘other developments’ (e.g., short list ID 50, 3.8 km from the Order Limits) falls outside of the study area / ZOI for an environmental topic (e.g., noise and vibration - operation, 2 km from the Order Limits), this development has been scoped out for that topic on the basis of distance and there being no reasonable pathway by which effects could propagate, unless otherwise stated.

Table 18.8 - Summary of likely significant residual inter-project Cumulative Effects During Construction and Operation

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
Construction		
ID3 - 2021/0450/SCP Scotland to England Green Link 2 Project Construction of ID3 (2024-2029) may overlap with Proposed Scheme (2024- 2029).	~ Air Quality; ~ Noise and Vibration; ~ Ecology; ~ Landscape and Visual Amenity; ~ Water Environment; and ~ Population and Health.	Both Air Quality and Noise and Vibration have identified potential cumulative impacts with ID3 during the construction phase. For Air Quality however, it is anticipated that through the production of a CEMP to mitigate dust and noise emissions, construction impacts would be **neutral (not significant).** For Noise and Vibration, excavation and trenching techniques for the construction of the pipeline are likely to be dominant. With mitigation, construction effects from noise are expected to be **slight (not significant).** Taking into account mitigation measures within **Chapter 8 (Ecology)**, and careful lighting design, the Proposed Scheme's effects on ecological receptors are considered to be nugatory and could not contribute to significant cumulative effects during construction or operation. Both the Proposed Scheme and ID3 propose to deliver 10% Biodiversity Net Gain (BNG). It is considered that this will address any significant cumulative effects of temporary and permanent loss of Important Ecological Features habitats. This enhanced habitat provision is also expected to address any cumulative construction disturbance and habitat loss / disruption on bats and birds (in-combination with standard good practice measures contained in each Project's CEMP). For this reason, effects on ecological receptors are predicted to be **not significant** during construction. In relation to Landscape and Visual Amenity, the Site Fabric and Camblesforth Farmlands Landscape Character Areas (LCA) and visual receptors (residents of Camblesforth, Drax and footpath users) will experience construction activities associated with the sub-station in addition to those of the Proposed Scheme. With mitigation already included as part of the Proposed Scheme, such as retention of existing vegetation during construction in line with the **Outline Landscape and Biodiversity Strategy (OLBS)** (document reference 6.6.1), it is predicted that there would be a **minor adverse (not significant)** impact on Common Landscape receptors as the increase in construction plant will be within the context of Drax Power Station and a temporary **moderate adverse (significant)** effect on Common Visual receptors due to both developments and the increase in construction activity within the view. The overlap in construction time between ID3 and the Proposed Scheme would lead to potential combined effects from combined pollution e.g., leaks and spills during construction. With the mitigation for the Proposed Scheme, discussed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)**, these are expected to be temporary and **slight adverse (not significant).** In relation to **Population and Health**, there is likely to be a **beneficial** socio-economic effect associated with the employment generated during the construction phase, both directly to the development and indirectly across the wider supply change. There may be temporary **slight adverse effects (not significant)** on increased demand for accommodation and community facilities.
ID6 - NY/2022/0027/SCO Barlow Ash Mound, North West of Drax Power Station Exact construction timeframes are unknown but likely to be 2024 - 2039.	~ Air Quality; ~ Noise and Vibration; ~ Ecology; ~ Landscape and Visual Amenity; ~ Water Environment; and ~ Population and Health	~ There is potential for some temporal overlap during construction activities between both ID6 and the Proposed Scheme, which could generate dust emissions and associated air quality impact activities. With appropriate mitigation (including a CEMP) from ID6 and that identified in **Appendix 6.2 (Construction and Decommissioning Phase Dust Assessment),** and providing there is appropriate mitigation measures provided at Barlow Ash Mound it is anticipated that there would be a **neutral impact (not significant)** on air quality;

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
		~ The development is currently at the Scoping stage, with the potential for cumulative effects at Barlow. A construction noise assessment will be undertaken for ID6 in accordance with BS5228. With mitigation measures and the use of Best Practicable Means for construction, the residual effects are anticipated to be **slight (not significant);** ~ As detailed in **Appendix 18.5 (Cumulative Effects Assessment Matrix),** with mitigation measures such as those implemented in the **OLBS** for the Proposed Scheme, effects on ecological receptors are anticipated to be **significant** at up to a District level during construction; ~ It is predicted that there would be a temporary **moderate adverse (significant)** effect on Common Visual receptors (residents with south-eastern facing views and footpath users); and temporary **minor adverse (significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA. The significant effect on Common Visual receptors is due to the presence of construction compounds from ID 6 being viewed with the Proposed Scheme; ~ The overlap in construction time between ID6 and the Proposed Scheme could potentially lead to pollution from construction activities that would affect groundwater and surface water receptors. With the implementation of a CEMP on both schemes, this is expected to reduce to **slight adverse (not significant)** for both groundwater and surface water**; and** ~ There is likely to be a **slight beneficial (not significant)** socio-economic effect associated with temporary construction employment generated, both directly to the development and indirectly across wider supply change. There may be temporary **slight adverse effects (not significant)** on increased demand for accommodation and community facilities.
ID7 - 2021/0120/FULM Development of a Horticultural Facility for indoor farming and agri-tech Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Air Quality; ~ Noise and Vibration; ~ Landscape and Visual Amenity; and ~ Water Environment.	~ There is potential for some temporal overlap during construction activities between both ID7 and the Proposed Scheme, which could generate dust emissions and associate air quality impact activities during construction. With construction phase mitigation from ID7 (for example a CEMP as stated in Condition 3) and the mitigation identified in **Appendix 6.2 (Construction and Decommissioning Phase Dust Assessment)** there should be a **neutral impact (not significant)** on air quality; ~ There is potential for construction noise effects to be present at Camblesforth, however with mitigation measures such as those included in Condition 16 of ID7 planning permission, and the use of Best Practicable Means for construction, the effects are anticipated to be temporary and **slight (not significant)**; ~ With respect to Landscape and Visual Amenity, it is predicted that there would be a temporary **minor adverse (not significant)** effect on Common Visual receptors (residents of Camblesforth and footpath users); and temporary **minor adverse (not significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA); and ~ The overlap in construction time between ID7 and the Proposed Scheme would lead to a moderate adverse effect on ground water due to pollution. With the implementation of a CEMP for the Proposed Scheme, these are expected to reduce to **slight adverse (not significant).**
ID8 - 2020/1357/FULM Development of an energy storage facility, Land off New Road, Drax Construction timeframes are unknown - a worst case overlap of	~ Air Quality; ~ Noise and Vibration; ~ Landscape and Visual Impact; ~ Water Environment; and ~ Population and Health.	~ There is potential for some temporal overlap during construction activities between both ID8 and the Proposed Scheme, which could generate dust emissions and associated air quality impact activities. With appropriate mitigation from ID 8 (for example the implementation of a CEMP), and that identified in Appendix 6.2 there should be a **neutral impact (not significant)** on air quality; ~ With mitigation measures such as the use of Best Practicable Means for construction and measures which comply with Condition 16 of ID8 planning permission, the residual effects for noise are anticipated to be temporary and **slight (not significant)**;

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
construction timeframes has been assessed.		~ With mitigation measures such as retention and enhancement of existing vegetation to the eastern boundary of the Laydown Area as outlined in the **(OLBS)**, it is predicted that there would be a temporary **moderate adverse (significant)** effect on Common Visual receptors (residents of Drax village residents with south-western facing views, and footpath users); and temporary **minor adverse (not significant)** effect on Common Landscape receptors (Camblesforth Farmlands LCA) during construction; ~ The overlap in construction time between ID8 and the Proposed Scheme would lead to a moderate adverse effect on both surface water and ground water due to pollution from increased sediment load and accidental spillages of substances such as oil and hazardous substances. For the Proposed Scheme, mitigation measures such as a CEMP for construction works would be implemented, and these effects are judged to reduce to **slight adverse (not significant);** and ~ There is likely to be a **slight beneficial** socio - economic effect associated with temporary construction employment generated, both directly to the development and indirectly across wider supply change. There may be temporary **slight adverse effects (not significant)** on increased demand for accommodation and community facilities.
ID9 - 2021/0348/SCN Five wind turbines Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Landscape and Visual Amenity; and ~ Noise and Vibration.	~ Residual effects for ecological receptors are anticipated to be **not significant** after the implementation of the habitat creation measures included in the **OLBS** for the Proposed Scheme; ~ It is predicted that there would be a temporary **minor adverse (not significant)** effect on Common Visual receptors (footpath users and recreational users of the River Ouse); and temporary **minor adverse (not significant)** impact on Common Landscape receptors (Ouse Valley LCA); and ~ With mitigation measures implemented as part of the Proposed Scheme (summarised in **Appendix 18.5 (Cumulative Effects Assessment Matrix)),** such as the use of Best Practicable Means for construction, the residual effects for noise are anticipated to be **slight (**temporary **not significant)**.
ID10 - 2021/0788/EIA Development of a ground-mounted solar farm Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Noise and Vibration; ~ Ecology; and ~ Landscape and Visual Amenity.	~ With mitigation measures implemented as part of the Proposed Scheme (summarised in **Appendix 18.5 (Cumulative Effects Assessment Matrix)),** the residual effects for noise are anticipated to be temporary **slight (not significant)**.With mitigation measures such as the use of Best Practicable Means for construction, the residual effects for noise are anticipated to be temporary **slight (not significant)**; ~ There is potential for cumulative effects on breeding and wintering birds, however with compensatory habitat proposed for both ID10 and the Proposed Scheme, it is considered that this would address any significant effects and therefore residual effects are predicted to be non-significant; and ~ It is predicted that there could be an **adverse (significant)** effect on Common Visual receptors (footpath users and residents of Camblesforth); and temporary **minor adverse (not significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA) during construction.
ID12 2020/0994/FULM Drax Demolition of Flue Gas Desulphurisation (FGD) Plant As discussed in the **paragraph 18.5.38, the demolition of Units**	~ Air Quality; ~ Noise and Vibration; ~ Ecology; ~ Landscape and Visual Amenity; and ~ Population and Health.	~ There is potential for some temporal overlap during construction activities between both ID12 and the Proposed Scheme, which could generate dust emissions and associate air quality impact activities. With appropriate mitigation (including a CEMP) and that identified in **Appendix 6.2 (Construction and Decommissioning Phase Dust Assessment)** it is anticipated that there would be a **neutral impact (not significant)** on air quality; ~ With mitigation measures implemented as part of the Proposed Scheme (summarised in **Appendix 18.5 (Cumulative Effects Assessment Matrix)),** such as the use of Best Practicable Means for construction, it is anticipated that there is low potential for cumulative effects in relation to noise;

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
1, 2 and 3 are assessed cumulatively here.		~ There is the potential for cumulative effects on Important Ecological Features (IEF) habitats, through loss, disturbance and fragmentation, however mitigation measures include compensatory habitat for the Proposed Scheme, and Condition 8 of the Planning Permission of ID12 which requires a Method Statement to address any minor habitat loss. For this reason, residual effects are predicted to be **non-significant** during construction; ~ It is predicted that there would be a temporary **moderate adverse (significant)** effect on Common Visual receptors (residents of Camblesforth, Drax and footpath users); and temporary **minor adverse (not significant)** impact on Common Landscape receptors (Site Fabric and Camblesforth Farmlands LCA) during construction; and ~ There is likely to be a **slight beneficial** socio-economic effect associated with temporary construction employment generated, both directly to the development and indirectly across wider supply change. There may be temporary **slight adverse effects (not significant)** on increased demand for accommodation and community facilities.
ID20 - 2019/0458/OUTM Residential development for up to 40 custom built dwellings Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Noise and Vibration	~ With mitigation measures implemented as part of the Proposed Scheme (summarised in **Appendix 18.5 (Cumulative Effects Assessment Matrix)),** the residual effects for noise are anticipated to be **neutral (not significant)**.With mitigation measures such as the use of Best Practicable Means for construction, the residual effects for noise are anticipated to be **neutral (not significant)**.
ID49 - 2021/1089/FULM Development of a battery storage facility Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Air Quality; ~ Noise and Vibration; ~ Landscape and Visual Amenity; and ~ Population and Human Health.	~ There is potential for some temporal overlap during construction activities between both ID49 and the Proposed Scheme, which could generate dust emissions and associate air quality impact activities. With appropriate mitigation implemented as part of ID49, and those identified in **Appendix 6.2 (Construction and Decommissioning Phase Dust Assessment),** there be a **neutral impact (not significant)** on air quality; ~ With mitigation measures implemented as part of the Proposed Scheme,(summarised in **Appendix 18.5 (Cumulative Effects Assessment Matrix)),** the residual effects for noise are anticipated to be **neutral (not significant)**.With mitigation measures such as the use of Best Practicable Means for construction, the residual effects for noise are anticipated to be **neutral (not significant)**; ~ It is predicted that there would be a temporary **minor adverse (not significant)** effect on Common Visual receptors (residents of Camblesforth, Carlton and Drax and footpath users); and temporary **minor adverse (not significant)** on Common Landscape receptors (Camblesforth Farmlands LCA); ~ The overlap in construction time between ID49 and the Proposed Scheme could potentially lead to a) to a moderate adverse effect on ground water due to pollution. With the implementation of a CEMP as part of the Proposed Scheme mitigation, this are expected to be reduced to temporary **slight adverse (not significant)** during construction**;** and ~ There is likely to be a **beneficial** socio - economic effect associated with temporary construction employment generated, both directly to the development and indirectly across wider supply change. There may be temporary **slight adverse effects (not significant)** on increased demand for accommodation and community facilities.
Operation		
ID1 - EN010081	~ Air Quality; and	~ With regards to ID1 and the Proposed Scheme, cumulative emissions from the Proposed Scheme and other projects would have no significant effect on local air quality with respect to human health during operation; and

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
Eggborough CCGT It is assumed that operation of ID1 will begin before construction of the Proposed Scheme.	~ Ecology.	~ With the mitigation measures described in **Section 6.10** of **Chapter 6 (Air Quality)**, the impact on ecological sites is neutral during operation. This outcome is discussed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)**.
ID3 - 2021/0450/SCP Scotland to England Green Link 2 Project It is assumed that both ID3 and the Proposed Scheme will begin operation in the same year.	~ Ecology; ~ Noise and Vibration; ~ Landscape and Visual Amenity; ~ Water Environment; and ~ Population and Health.	~ Taking into account mitigation measures within **Chapter 8 (Ecology)**, and careful lighting design, residual effects are predicted to be non-significant during operation; ~ As detailed in **Appendix 18.5 (Cumulative Effects Assessment Matrix),** cumulative effects for Noise and Vibration during operation are anticipated to be **neutral;** ~ It is predicted that there be a minor adverse (not significant) effect on Common Visual receptors (residents of Camblesforth, Drax and footpath would users); and minor adverse (not significant) impact on Common Landscape receptors (Site Fabric and Camblesforth Farmlands LCA) during operation; ~ Neutral effects are anticipated for Groundwater and Surface Water during operation; and ~ There is likely to be a beneficial socio-economic effect associated with direct employment, indirect employment, and induced employment during operation.
ID4 - EN010114 Keadby 3 Low Carbon Gas Power Station It is assumed that ID4 will begin operation in 2026, before the Proposed Scheme.	~ Air Quality; and ~ Ecology.	~ Taking into account ID4 and the Proposed Scheme, cumulative emissions from the Proposed Scheme and other projects would have no significant effect on local air quality with respect to human health during operation; and ~ With the Drax BECCS mitigation measures described in **Section 6.10** of **Chapter 6 (Air Quality)**, the impact on ecological sites is neutral during operation. This outcome is discussed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)** .
ID5 - EN010094 Ferrybridge D CCGT It is assumed that ID5 will begin operation before the Proposed Scheme.	~ Ecology	~ The only potential cumulative impact pathway identified is for increased cumulative air quality impacts on designated sites. The Air Quality modelling (see **Chapter 6 (Air Quality)**) identifies that no modelling data was available that could be used to model the effects of ID 5. It is also noted that there is considerable uncertainty that development 5 will actually come forward, with development 5 having made no public announcements since 2018. Development 5 is therefore unlikely to be operational or consented (and thus itself requiring an in-combination assessment and judgement to be made) prior to operation of the Proposed Scheme. For this reason, operational effects are predicted to be neutral, not significant.
ID6 - NY/2022/0027/SCO Barlow Ash Mound, North West of Drax Power Station Recovery of ash resource is expected to take 20 years, overlap with Proposed Scheme operation.	~ Air Quality; ~ Noise and Vibration; ~ Ecology; ~ Landscape and Visual Amenity; ~ Water Environment - Groundwater and Surface Water; and ~ Population and Health.	~ **Neutral** impacts are predicted for Air Quality, Groundwater and Ecology during operation; ~ For Surface Water, with the implementation of the **Surface Water Drainage Strategy** (**Appendix 12.3**) and floodplain compensation for the Proposed Scheme there would be a **neutral** impact for flood risk due to increased surface water runoff, and a **minor beneficial (not significant)** effect on the risk of flooding due to potential floodplain creation in the Barlow Mound area; ~ This development is currently at the Scoping stage. In the planning application for ID6, it details that an operational noise assessment would be undertaken in accordance with BS4142. With the mitigation implemented as part of the Proposed Scheme, the residual cumulative effects are expected to be **slight (not significant)** for noise and vibration during operation;

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
		~ As detailed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)**, it is predicted that there would be a **minor adverse (not significant)** effect on Common Landscape receptors (Camblesforth Farmlands LCA) and on Common Visual receptors; and ~ There is likely to be a **slight beneficial (not significant)** socio-economic effect associated with direct employment, indirect employment, and induced employment during operation.
ID7 - 2021/0120/FULM Development of a Horticultural Facility for indoor farming and agri-tech. Unknown operation phase start date.	~ Air Quality; ~ Noise and Vibration; ~ Landscape and Visual Amenity; and ~ Water Environment.	~ **Neutral** impacts are predicted for Air Quality and Groundwater during operation; ~ Condition 16 of the planning application 2021/0120/FULM requires rating levels to be no greater than +5dB compared to background noise levels. With mitigation, **slight (not significant)** residual effects are anticipated for noise; and ~ It is predicted that there would be a **minor adverse (not significant)** effect on Common Landscape receptors (Camblesforth Farmlands LCA) and **minor adverse (not significant)** effect on Common Visual receptors (residents of Camblesforth and footpath users) during operation.
ID8 - 2020/1357/FULM Development of an energy storage facility, Land off New Road, Drax Unknown operation phase start date.	~ Air Quality; ~ Landscape and Visual Amenity; ~ Noise and Vibration; ~ Water Environment; and ~ Population and Health.	~ **Neutral** impacts are predicted for Air Quality and the Water Environment during operation; ~ It is predicted that there would be a **minor adverse (not significant)** effect on Common Visual receptors (residents of Drax village with south-western facing views, and footpath users); and **minor adverse (not significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA) during operation; ~ Condition 16 of the ID8 consent requires rating levels to be no greater than +5dB compared to background noise levels. In conjunction with the mitigation measures proposed as part of the Proposed Scheme, as explained in **Appendix 18.5 (Cumulative Effects Assessment Matrix),** the cumulative residual effects are expected to be **neutral**; and ~ There is likely to be a **slight beneficial** socio-economic effect associated with direct employment, indirect employment, and induced employment.
ID9 - 2021/0348/SCN **Five wind turbines** Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Landscape and Visual Impact; ~ Noise and Vibration; and ~ Heritage.	~ As stated in **Appendix 18.5 (Cumulative Effects Assessment Matrix),** it is predicted that there would be a **minor adverse (not significant)** effect on Common Landscape receptors (Ouse Valley LCA) during operation; ~ There is potential for cumulative noise effects during operation, on receptors near to ID 9 and the Proposed Scheme. It is the responsibility of the Environmental Health Officer and the applicant for ID9 to implement mitigation and secure this through a planning condition. The Applicant for this Proposed Scheme has proposed a dDCO requirement which secures mitigation for the operational phase of the Proposed Scheme. The cumulative effect is anticipated to be **slight (not significant)**; and ~ It is anticipated that there would be a **slight adverse** effect on the setting of Above Ground Heritage Assets as there would be limited long distance views of the development due to topography of Barlow Mound, during operation.
ID10 - 2021/0788/EIA Development of a ground-mounted solar farm Construction timeframes are unknown - a worst case overlap of	~ Noise and Vibration; ~ Ecology; and ~ Landscape and Visual Amenity.	~ There is potential for cumulative noise effects on receptors west of Drax. With the mitigation measures for the Proposed Scheme, and any mitigation required to comply with agreed noise limits for ID10 as outlined in **Appendix 18.5,** it is anticipated that the residual effects would be **slight (not significant);** ~ There is potential for cumulative effects on breeding and wintering birds, however with compensatory habitat provision and habitat enhancements in both ID10 and the Proposed Scheme, it is considered that this would address any significant effects and therefore residual effects during operation are predicted to be **non-significant**; and

Short List ID (Refer to Appendix 18.2)	Environmental Topics	Significance of Cumulative Effect
construction timeframes has been assessed.		~ It is predicted that there would be a **minor adverse (significant)** effect on Common Visual receptors (footpath users and residents of Camblesforth); and **minor adverse (not significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA) during.
ID47 - 20/01774/TIPA Energy from Waste Plant, Land northwest of Sandall Stones Road, Kirk Sandall, Doncaster Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Air Quality; and ~ Ecology.	With regard to cumulative air emissions from ID4 and the Proposed Scheme it is anticipated that there would be no significant effect on local air quality with respect to human health during operation. With the mitigation measures described in **Section 6.10** of **Chapter 6 (Air Quality),** the impact on ecological sites is **neutral**. This outcome is discussed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)**.
ID49 - 2021/1089/FULM Development of a battery storage facility, Land off Hales Lane, Drax Construction timeframes are unknown - a worst case overlap of construction timeframes has been assessed.	~ Landscape and Visual Amenity; ~ Noise and Vibration; ~ Water Environment – Groundwater; and ~ Population and Health.	~ As detailed in **Appendix 18.5 (Cumulative Effects Assessment Matrix),** it is predicted that there would be a **minor adverse (not significant)** impact on Common Landscape receptors (Camblesforth Farmlands LCA) during operation; ~ Neutral effects are anticipated for Groundwater; ~ There is low potential for cumulative effects. For ID49, the noise assessment report No. 102592-2, December 2021, indicates that an assessment was undertaken based on BS4142 and that there are no significant effects expected from the development. With mitigation measures implemented as part of the Proposed Scheme, the cumulative residual effects on noise and vibration are expected to be **slight (not significant)** during operation; and ~ There is likely to be a **slight beneficial** socio-economic effect associated with direct employment, indirect employment, and induced employment during operation.
ID74 - Unknown Keadby 2 Power Station Construction expected to be completed before Proposed Scheme construction starts in 2024.	~ Air Quality; and ~ Ecology	The modelled results have demonstrated that cumulative emissions from the Proposed Scheme and other projects, including Keadby 2, would have no significant effects on local air quality with respect to human health during operation. With the mitigation measures described in **Section 6.10** of **Chapter 6 (Air Quality)**, the impact on ecological sites is neutral. This outcome is discussed in **Appendix 18.5 (Cumulative Effects Assessment Matrix)**.

SUMMARY OF LIKELY SIGNIFICANT EFFECTS

Intra-project Effects

18.9.8. The assessment of intra-project combined effects has considered the potential for moderate adverse effects for Residents living in properties off Pear Tree Avenue, Wren Hall Lane, Carr Lane, Main Road, Camela Lane, Clay Lane, and Camblesforth during the construction phase. These effects are mainly associated with the changes in views and landscape alterations and increased noise during the construction phase. The effects are anticipated to be no worse than the effects described in Chapter 7 (Noise and Vibration) and Chapter 9 (Landscape and Visual Amenity). No significant effects have been identified during the operational phase.

Inter-project Effects

18.9.9. The assessment of inter-project combined effects has identified the potential for **moderate adverse** effects arising in-combination with other short-listed developments (ID 3, 6, 8, 10 and 12). These effects are in relation to Landscape and Visual Amenity and ecological receptors up to the District level. The effects on ecological receptors are included in **Appendix 18.5 (Cumulative Effects Assessment Matrix)** and are detailed further in **Section 4.3** of the **Habitat Regulations Assessment Report.** These adverse residual effects occur during construction and are temporary and are no greater than for the Proposed Scheme on its own. No additional mitigation measures are therefore proposed.

18.9.10. No likely significant effects are anticipated during the operation phase for inter-project cumulative effects.

18.10. MITIGATION AND MONITORING

18.10.1. No further likely combined “intra-project” significant residual effects have been identified above the level of significance of those reported for the Scheme alone. Similarly, there would be no significant inter-project cumulative effects due to the Proposed Scheme and ‘other developments’ above the level of those reported for the Proposed Scheme alone. Therefore, no further mitigation or monitoring is required, other than that set out in **Chapters 5-13** and **16** of the technical assessments**.**

Table 18.9 - Summary of Cumulative Effects

Receptor	Potential Effects	Additional Mitigation	Residual Effects
Intra-project Significant Effects - Construction			
Residents living in properties with western facing views off Pear Tree Avenue.	Views for residents would be disrupted and the Landscape Character altered, with moderate adverse effects. There may be slight adverse effects due to construction noise. Residents may also experience effects as a result of increased dust deposition (although these effects are anticipated to be negligible).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (significant)** T / I + D / ST
Residents living in properties with eastern facing views (Camela Lane / Clay Lane)	Views for residents would be disrupted and the Landscape Character would be altered, with moderate adverse effects. There may be slight adverse effects due to construction noise. Residents may also experience effects as a result of increased dust deposition (although these effects are anticipated to be negligible).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (significant)** T / I + D / ST
Residents in properties with north-east facing views from the settlement of Camblesforth	Views for residents would be disrupted and the Landscape Character would be altered, with moderate adverse effects. There may be slight adverse impacts due to construction noise. Residents may also experience effects as a result of increased dust deposition (although these effects are anticipated to be neutral / negligible).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (significant)** T / I + D / ST
Inter-project Significant Effects - Construction			
Short List ID 3	It is predicted that there would be temporary moderate adverse effects on Common Visual receptors due to the increase in large scale infrastructure within the view.	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (Significant)** on Common Visual receptors T / I + D / ST
Short List ID 6	It is predicted that there would be temporary moderate adverse effects on Common Visual receptors (residents with south-eastern facing views and footpath users). It is also anticipated that there would be significant effects on ecological receptors at the District level.	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (Significant)** on Common Visual receptors **Significant** effects on ecological receptors at a District level. T / I + D / ST
Short List ID 8	It is predicted that there would be temporary moderate adverse effects on Common Visual receptors (residents of Drax village with south-facing views and footpath users).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (Significant)** on Common Visual receptors. T / I + D / ST

Receptor	Potential Effects	Additional Mitigation	Residual Effects
Short List ID 10	It is predicted that there would be temporary moderate adverse effects on Common Visual receptors (footpath users and residents of Camblesforth).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (Significant)** on Common Visual receptors T / I + D / ST
Short List ID 12	It is predicted that there would be temporary moderate adverse effects on Common Visual receptors (footpath users and residents of Camblesforth and Drax).	As detailed in **paragraph 18.10.1**, no additional mitigation is proposed.	**Moderate Adverse (Significant)** on Common Visual receptors T / I + D / ST

Key to table:

P/T = Permanent or Temporary, D/I = Direct or Indirect, ST/MT/LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

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