



# **ENVIRONMENTAL STATEMENT – VOLUME 1 – CHAPTER 16 POPULATION, HEALTH AND SOCIO-ECONOMICS**

## **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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## 16. POPULATION, HEALTH AND SOCIO-ECONOMICS

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### 16.1. INTRODUCTION

- 16.1.1. This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme on Population, Health and Socio-economics.
- 16.1.2. Impacts during the construction phase, operational phase and decommissioning of the Proposed Scheme are assessed. A full description of the Proposed Scheme is described in **Chapter 2 (Site and Project Description)** of this ES (document reference 6.1.2).
- 16.1.3. This chapter is intended to be read as part of the wider ES with particular reference to **Chapter 5 (Traffic and Transport)** (document reference 6.1.5), **Chapter 6 (Air Quality)** (document reference 6.1.6), **Chapter 7 (Noise and Vibration)** (document reference 6.1.7) and the **Register of Environmental Actions and Commitments (REAC)** (document reference 6.5).
- 16.1.4. 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 impacts as a result of the Proposed Scheme;
  - e. Details the design, mitigation and enhancement measures that have been identified;
  - f. Reports the assessment of the significant effects of the Proposed Scheme; and
  - g. Details the monitoring that should be carried out for the Proposed Scheme.
- 16.1.5. The Proposed Scheme has the potential to affect Population, Health and Socio-economics as a result of:
- a. During construction phase / decommissioning:
    - i. Increased demand for accommodation and community facilities due to an influx of workers;
    - ii. Generation of direct employment opportunities;
    - iii. Generation of indirect and induced employment opportunities; and
    - iv. Changes in access to development land and businesses.
  - b. During operational phase:
    - i. Generation of direct employment opportunities; and
    - ii. Generation of indirect and induced employment opportunities.

## OPTIONALITY

- 16.1.6. For the purposes of this assessment the following options, as described in **Chapter 2 (Site and Project Description)**, **para 2.3.19** and **2.3.4**, have been assessed:
- a.** Abnormal Indivisible Loads (AIL) deliveries route from Goole Inland Port:
    - i. A161 > M62 > A614 > A645
  - b.** Construction Programme
    - i. The Carbon Capture Plant associated with Unit 1 and Unit 2 as well as the common plant to be constructed at the same time.
- 16.1.7. These options are considered the worst case scenarios for the Traffic and Transport assessment. This is because the AIL delivery route option is based on the largest AIL to be transported from Goole to the Site, and the construction programme option is predicted to generate the greater number of vehicle movements during the peak construction year. These options provide key information for assessing the scoped in elements of the Population, Health and Socio-economics assessment during the construction phase, operational phase and decommissioning. They are also, therefore, applicable as the worst case scenarios for this chapter.

## 16.2. LEGISLATIVE AND POLICY FRAMEWORK

### LEGISLATIVE FRAMEWORK

- 16.2.1. The applicable legislative framework is summarised as follows.

#### National

##### **The Equality Act (2010)**

- 16.2.2. The Equality Act protects vulnerable groups who have ‘protected characteristics’ including gender, sexual orientation, and race, against discrimination, harassment or victimisation in the workplace and whilst using private and public services. The Proposed Scheme is expected to create employment opportunities and lead to an influx of workers. It is important, therefore, to review these anticipated impacts with respect to the Equality Act to ensure vulnerable groups are not disadvantaged as a result of the construction of the Proposed Scheme or its effects.

##### **The Localism Act (2011)**

- 16.2.3. The Localism Act sets out a series of measures with the potential to achieve a substantial shift in power away from central government and towards local people. The Localism Act gives new rights and powers to communities and individuals and is relevant in the context of the Proposed Scheme due to its potential to impact the demand for community facilities.

## **POLICY FRAMEWORK**

16.2.4. The applicable policy framework is summarised as follows:

### **National**

#### **National Policy Statements (2021)**

16.2.5. The National Policy Statements (NPSs) relevant to the Proposed Scheme are as follows:

- a. Overarching National Policy Statement for Energy: EN-1 (NPS EN-1) (DECC, 2011): This document sets out national policy for energy infrastructure as defined by the Planning Act 2008 and provides an overarching document under which all other energy NPSs sit. The policies within this NPS, in combination with policies set out in relevant technology specific energy NPSs, provide the primary basis for decisions by the Secretary of State (SoS) and set out the need for new energy infrastructure. The sections of most relevance to this chapter are 4.13 (Health) and 5.12 (Socio-economic); and
- b. National Policy Statement for Renewable Energy: EN-3 ('NPS EN-3') (DECC, 2011). This policy must be considered together with the 'Overarching NPS for Energy' ('NPS EN-1') as set out above. It provides the primary basis for decisions by the SoS on applications it receives in relation to nationally significant renewable energy infrastructure projects. The paragraphs of most relevance to this chapter are para 1.7.6 and 2.5.44.

16.2.6. The updated draft energy NPSs were published by the Government on 6 September 2021, the consultation period for which ran until 29 November 2021, during the Statutory Consultation period for the Proposed Scheme. Accordingly, the updated draft versions of the NPSs have now been considered as part of the ES and DCO Application.

#### **National Planning Policy Framework (2021)**

16.2.7. The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2021) was revised in 2021 and sets out the government's planning policies for England, and how these should be applied.

16.2.8. Applicable NPPF chapters to the Proposed Scheme include Chapter 6: Building a Strong Competitive Economy and Chapter 14: Meeting the challenges of climate change flooding and coastal change. Chapter 6 focuses on supporting economic growth and productivity for both the local and wider economy. The Proposed Scheme is expected to contribute economic growth for the region. Chapter 14 focuses on the transition to a low carbon future as a means of mitigating and adapting to climate change. The Proposed Scheme aligns with one of its key objectives; to- "*identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems*" (para 155 (c)).

16.2.9. When delivering new schemes, applicants must avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF. Applicants should

provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.

- 16.2.10. The National Planning Practice Guidance (PPG) (Ministry of Housing Communities and Local Government, 2021) has been published alongside the NPPF, and is regularly updated to provide guidance on the implementation of planning policies. The relevant PPG section is entitled ‘Open space, sports and recreation facilities, public rights of way and local green space’, which notes that open space, which includes all open space of public value, should be taken into account in planning for new development and considering proposals that may affect existing open space.

### Local

#### **Selby District Core Strategy Local Plan (2013)**

- 16.2.11. The Selby Local Plan (Selby District Council, 2013) covers the period to 2027, and sets out the spatial vision for Selby District and strategic objectives to achieve that vision. The overall vision of the Plan is that: *“By 2027 Selby District will be a distinctive rural District with an outstanding environment, a diverse economy and attractive, vibrant towns and villages. Residents will have a high quality of life and there will be a wide range of housing and job opportunities to help create socially balanced and sustainable communities, which are less dependent on surrounding towns and cities”*.
- 16.2.12. Section 6 ‘Promoting Economic Prosperity’, includes policies to grow a modern, diversified and sustainable economy which provides an improved range of local employment opportunities.
- 16.2.13. Section 7 ‘Improving the Quality of Life’, includes policies to promote the health and wellbeing of communities, ensuring access to services and essential facilities for residents. One of the Core Strategy Policies within this section is SP17 Renewable Energy. This policy aims to reduce the reliance on non-renewable energy sources by increasing renewable energy capacity in the Selby District.

#### Selby District Council Site Allocations Development Plan Document (2011)

- 16.2.14. The Site Allocations Development Plan Document (SADPD) (Selby District Council, 2011) is one of the main documents used in the Local Development Framework to deliver the vision set out in the Council’s Core Strategy.
- 16.2.15. The SADPD identifies sufficient sites to accommodate the development found to be required in the District up to 2026, including approximately 49 (net) hectares of new employment land. The SADPD is relevant to this chapter because the land allocated for employment forms part of the Development Land and Businesses element considered in the assessment.
- 16.2.16. In 2012 the Council halted work on the SADPD as it focused resources on the Adoption of the Core Strategy.

**North Yorkshire County Council A plan to deliver economic recovery and growth 2021 – 2024**

- 16.2.17. This revised Plan for Economic Growth (North Yorkshire County Council, 2021) is a continuation of the previous plan developed in 2017. The Plan sets out its overall vision for the county as “...a place with a strong economy and a commitment to sustainable growth that enables everyone to fulfil their ambitions and aspirations”. It sets out the main objectives to achieve this vision, as well as the priorities for the next four years and key performance indicators.
- 16.2.18. This plan for growth recognises the wider benefits and impacts that economic prosperity has in addressing inequalities in health, educational attainment and future opportunity.
- 16.2.19. An assessment of the relevant policies is detailed further in the **Planning Statement** (document reference 5.2).

**16.3. CONSULTATION**

- 16.3.1. **Table 16.1** provides a summary of the consultation undertaken in support of the preparation of this assessment.

**Table 16.1 - Consultation Summary Table**

<b>Date and Method of Consultation</b>	<b>Consultee</b>	<b>Summary of Key Topics discussed and Key Outcomes</b>
2 September 2021 Telephone conversation	Selby District Council (SDC) and North Yorkshire County Council (NYCC)	<p>Discussion regarding the scope of the Population, Health and Socio-economics assessment. The Applicant, SDC and NYCC agreed those topics to be scoped in to and out of the assessment.</p> <p>The Applicant, NYCC and SDC are in agreement that the agricultural land assessment should be excluded from the Population, Health and Socio-economics assessment. However, it was agreed that, during the EIA, should it be the case that the Habitat Provision Area would result in impacts to the agricultural land, that this would then be scoped back in.</p> <p>The Applicant discussed the types of baseline data and methodology to be included in the assessment, and SDC and NYCC confirmed agreement regarding the ES baseline and methodology for this topic.</p>

- 16.3.2. An **EIA Scoping Opinion (Appendix 1.2)** (document reference 6.3.1.2) was received by the Applicant from the Planning Inspectorate (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 Population, Health and Socio-economics and how these requirements are addressed by the Applicant are set out in **Appendix 4.2** (document reference 6.3.4.2).

## **16.4. SCOPE OF THE ASSESSMENT**

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

- 16.4.2. The elements shown in **Table 16.2** are not considered to give rise to likely significant effects as a result of the Proposed Scheme and have therefore not been considered within this assessment.



**Table 16.2 - Elements Scoped Out of the Assessment**

Element scoped out	Justification
<p>Crime and Safety (construction, operation, and decommissioning)</p>	<p>During construction and decommissioning, security arrangements for the Proposed Scheme will be in line with the requirements set out in the Construction (Design and Management) Regulations. Appropriate levels of security (including personnel / CCTV) will be appointed. In addition, it is anticipated that the Proposed Scheme will be designed to incorporate the 'Secured by Design' principles and liaison will be undertaken with the region's Police Architectural Liaison Officer and / or a North Yorkshire Police's Designing Out Crime Officer.</p> <p>Appropriate levels of security (personnel / CCTV) will be implemented during the operational phase.</p> <p>Following receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, it was agreed that this element of the assessment could be scoped out.</p>
<p>Private Property and Housing (construction)</p>	<p>There is potential for adverse Traffic and Transport, Noise and Vibration, Air Quality and Landscape and Visual Amenity effects on private property located along Carr Lane and Redhouse Lane, however, these effects will be fully assessed in the relevant ES chapters and are not anticipated to be significant for the Population, Health and Socio-economics assessment. Following receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, it was agreed that this element of the assessment could be scoped out.</p>
<p>Changes in access to Community Land and Assets (construction)</p>	<p>Given that a large proportion of the Order Limits is within the Drax Power Station, and the remaining area is predominantly agricultural, with the main recreational use being Public Rights of Way (PRoW), there is unlikely to be a significant effect in relation to community land and assets, leisure uses or tourism in the local area.</p> <p>The northern extent of Drax Golf Club car park, and part of its eastern extent, are bounded by the Order Limits. The car park itself and functioning of the club, however, will remain unaffected. Following receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, it was agreed that this element of the assessment could be scoped out.</p>
<p>Human Health (construction and operation)</p>	<p>There is potential for direct adverse effects on health, however, any human health effects from Noise and Vibration or Air Quality will be assessed within the relevant ES chapters and are not anticipated to be significant for the Population, Health and Socio-economics assessment. Following receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, it was agreed that this element of the assessment could be scoped out.</p>
<p>Agricultural Land Holdings (construction and operation)</p>	<p>Since receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, which stated an assessment of agricultural land holdings should be conducted where significant effects are likely to occur, there has been refinement in the Proposed Scheme design. As a result, no significant effects on agricultural land holdings in terms of quantity, quality, viability or changes in access are anticipated to occur during construction and operational phases.</p> <p>Consultation was undertaken with SDC and NYCC to agree the scope of the assessment, and to agree that agricultural land holdings could be scoped out on the basis of no significant effects being anticipated, as outlined in <b>Table 16.1</b> above.</p> <p>The latest extension to the Order Limits introduces a Habitat Provision Area within the land to the north of the East Construction Laydown Area. 179.86 hectares are operated for agricultural purposes within this land. The permanent loss of land to accommodate the Habitat Provision Area will be 4.2 hectares, which equates to 2.3% of the total operational capacity. Given this information and in accordance with DMRB guidance LA112 Population and human health, the magnitude of impact on agricultural land holdings can be deemed negligible (<b>Table 16.4</b>). Due to the lack of frequency of use data available, it is not possible to allocate a level of sensitivity for agricultural land holdings. However, on the basis of the negligible magnitude of impact, it can be concluded that the inclusion of the Habitat Provision Area in the Order Limits would not result in any significant effects on agricultural land holdings.</p> <p>Furthermore, the introduction of the Off-Site Habitat Provision Area would not result in any effects on agricultural land holdings because it is situated within woodland and is disused agricultural land.</p> <p>As a result of the above, this element of the assessment can be scoped out.</p>

Element scoped out	Justification
<b>Non-Motorised Users (NMUs)</b>	There is potential for direct adverse effects on NMUs of PRow, however, any effects on users will be assessed within <b>Chapter 5 (Traffic and Transport), Chapter 6 (Air Quality), Chapter 7 (Noise and Vibration) and Chapter 9 (Landscape and Visual Amenity)</b> and are not anticipated to be significant for the Population, Health and Socio-economics assessment. Following receipt of the <b>Scoping Opinion (Appendix 1.2)</b> from PINS, it was agreed that this element of the assessment could be scoped out of the Population, Health and Socio-economics assessment and covered in the ES chapters outlined above.

## **Elements Scoped into the Assessment**

### **Construction Phase and Decommissioning**

- 16.4.3. The following elements are considered to have the potential to give rise to significant effects during construction and decommissioning of the Proposed Scheme and have therefore been considered within this assessment:

#### **Increased demand for accommodation and community facilities due to an influx of workers;**

- a.** Generation of direct employment opportunities;
- b.** Generation of indirect and induced employment opportunities; and
- c.** Changes in access to Development Land and Businesses.

### **Operational Phase**

- 16.4.4. The following elements are considered to have the potential to give rise to significant effects during the operational phase of the Proposed Scheme and have therefore been considered within this assessment:

#### **Generation of direct employment opportunities; and**

- a.** Generation of indirect and induced employment opportunities.

- 16.4.5. The elements relating to community facilities and development land and businesses are included within the land use related assessments. The elements relating to indirect, induced and direct employment are included within the socio-economics assessments.

## **16.5. ASSESSMENT METHODOLOGY**

- 16.5.1. The methodology for land use related assessments has been defined using DMRB guidance LA112 Population and Human Health. Despite the DMRB being the standard for assessment of road schemes, this guidance provides the best methodology for assessing Population and Human Health (in particular for assessing the impacts on land use and accessibility) in the context of the Proposed Scheme. There are no formal guidance requirements which exist in relation to Socio-economics, and therefore the assessment is guided by the Government's planning policy and guidance (particularly the NPPF, NYCC's Economic Recovery and Growth Plan and SDC's Selby Local Plan as detailed above), as well as past experience and professional judgement.
- 16.5.2. This approach reflects past professional experience of DCO schemes and has been accepted by PINS as an appropriate methodology and approach to this type of assessment. Further details on the methodologies of each aspect of the Population, Health and Socio-economics assessment have been detailed below.

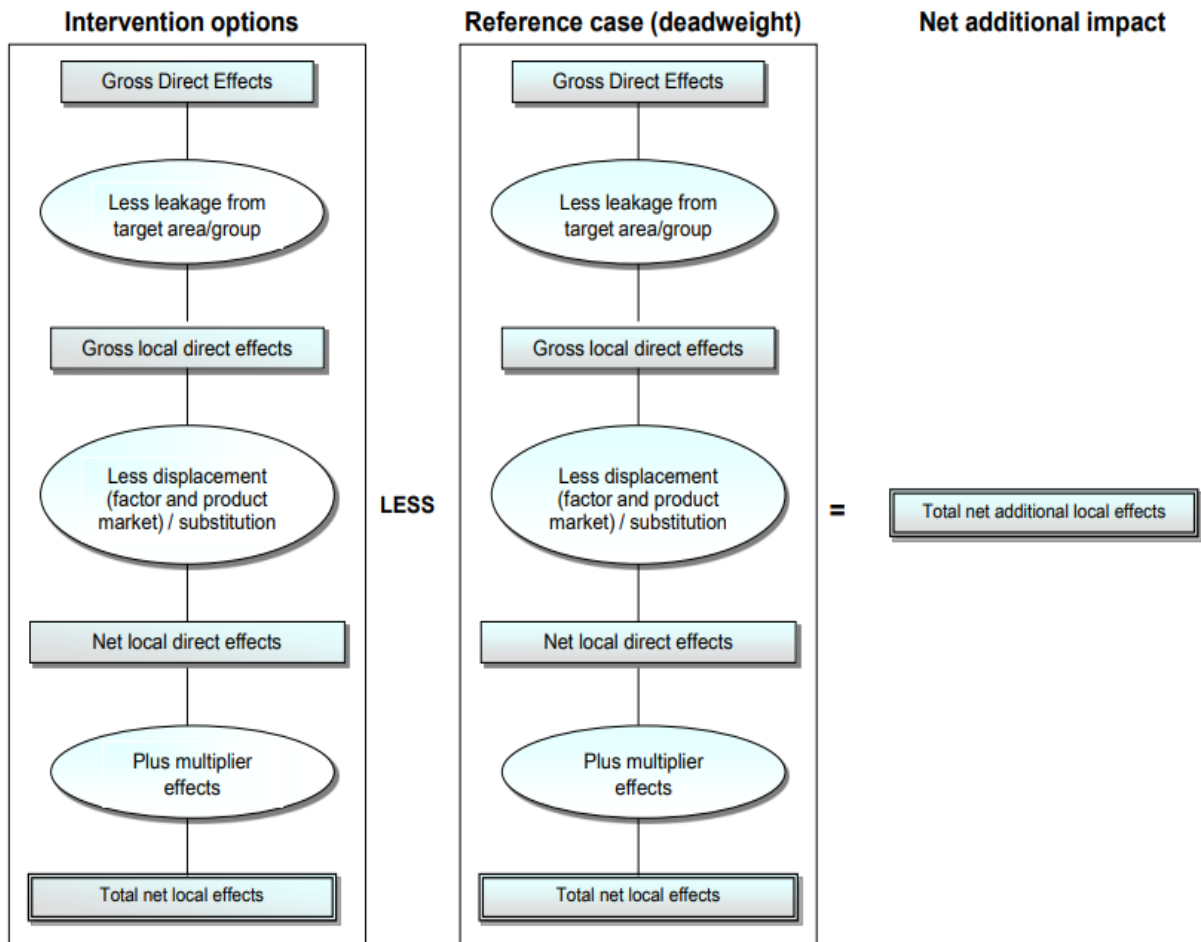
## **INCREASED DEMAND FOR ACCOMMODATION AND COMMUNITY FACILITIES DUE TO AN INFLUX OF WORKERS**

- 16.5.3. A proportion of the construction workers at the Proposed Scheme are likely to be sourced from beyond the Yorkshire and the Humber region and may be required to relocate locally to Drax for periods of the construction phase (for example, if workers with particular training or skills are required to construct elements of the Proposed Scheme). This could lead to an increased demand for local accommodation and community facilities (e.g., education, healthcare and shops / other community facilities).
- 16.5.4. The proportion of the workforce likely to be sourced from beyond the Yorkshire and the Humber region has been determined based on the Applicant's experience of similar works, professional judgement and past experience from other schemes of a similar size.
- 16.5.5. There is no established assessment framework outlined within DMRB guidance relating to demand for accommodation and community facilities from construction workers. As such, the assessment is based on past experience of similar schemes and comprises a qualitative assessment taking into account the likely number of additional construction workers coming to live in the study area, and the effects of this on demand for local services. The influx of these construction workers has been used to estimate the magnitude of change and any additional pressure which may be placed on accommodation and community facilities in the context of existing demand within the local area and main settlements surrounding the Order Limits.

## **GENERATION OF DIRECT, INDIRECT AND INDUCED EMPLOYMENT OPPORTUNITIES**

- 16.5.6. The Proposed Scheme will generate new direct, indirect and induced employment opportunities during the construction phase, operational phase, and decommissioning.
- 16.5.7. A desk-based assessment has been carried out to understand the baseline conditions in relation to the local and regional economy, using publicly available data including NOMIS (Nomis, 2020) and Census data from the Office for National Statistics (Office for National Statistics, 2011).
- 16.5.8. There is no formal guidance to assess the generation of employment opportunities within DMRB guidance, so this assessment is based on professional judgement and knowledge and experience of similar schemes, applying the approaches outlined in the English Partnerships Additionality Guide (Homes and Communities Agency, 2014) (the "Additionality Guide"). The overall approach adopted to assess the additionality of an intervention is summarised within the guidance in 'Figure 2.3 Approach to assessing project level additionality - key components' (replicated in **Plate 16.1 below**), and Box 2.1 which provides a description of these key components.

**Plate 16.1 - Approach to Assessing Project Level Additionality - Key Components**



16.5.9. The anticipated number of jobs generated during construction of the Proposed Scheme is evaluated against the total number of employees in the regional construction industry to determine the magnitude of change. Consideration will be given to the specialist nature of the works and the potential need to use non-local specialist resources.

16.5.10. The assessment of likely significant effects relating to employment generation has been undertaken using publicly available data sources and is based on calculations of gross employment. Local employment generation has been assessed for the NYCC area, and regional employment generation for Yorkshire and the Humber based on calculations of gross employment generation by Vivid Economics (Vivid Economics Limited, 2021). Leakage, displacement and multiplier effects are then taken into account to determine the total net employment. These are described below.

### Leakage

- 16.5.11. Leakage effects are the “*proportion of outputs that benefit those outside of the intervention’s target area or group*” (HCA). According to the Humber Local Enterprise Partnership’s (LEP) ‘Review of the Humber’s Economic Geography’ (Grant Thornton, 2018), 15% of the population commute out of the area for work. This corresponds to a medium leakage rate as set out by the Additionality Guide and implies that a reasonably high proportion of employment opportunities will go to people living within the target (effect) area.

### Displacement

- 16.5.12. Displacement measures the extent to which the benefits of a project are offset by reduction of output or employment elsewhere. Additional demand for labour as a result of the construction phase of the Proposed Scheme cannot simply be treated as a net benefit as it has the potential to remove workers from other positions, and the net benefit is therefore reduced by the extent that this occurs.
- 16.5.13. While construction workers typically move between construction projects when delays occur or to help the workforce meet particular construction deadlines, the construction workforce within Yorkshire and the Humber Region is likely to have a moderate level of mobility (the ability to move between projects) on the basis of guidance in the Additionality Guide.
- 16.5.14. The Additionality Guide provides guidance on levels of displacement. Within the context of the Proposed Scheme, a low level of displacement of 25% is considered appropriate for this assessment.

### Multiplier Effects

- 16.5.15. In addition to the Direct Employment generated by the Proposed Scheme, there will be an increase in employment arising from “*further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases*” (para 4.5.1), this being the Indirect and Induced Employment effects of the construction activity ( (Homes and Communities Agency, 2014). Homes and Communities Agency, 2014). Employment growth will arise locally through manufacturing services and suppliers to the construction process (indirect or supply linkage multipliers).
- 16.5.16. Additionally, part of the income of the construction workers and suppliers will be spent in the region, generating further employment (induced or income multipliers). The effects of the multiplier depend on the size of the geographical area that is being considered, the local supply linkages and income leakage from the area.
- 16.5.17. Table 4.13 of the Additionality Guide (Homes and Communities Agency, 2014) provides a guide to the composite multipliers (the combined effect of indirect and induced multiplier effects) which should be applied. In line with this guidance, in a regional context for Yorkshire and the Humber, a multiplier of 1.5 will be applied on

the basis that the level of multiplier effects is considered to be 'medium' as there are anticipated to be 'average linkages' associated with the Proposed Scheme.

### **CHANGES IN ACCESS TO DEVELOPMENT LAND AND BUSINESSES**

- 16.5.18. Although there will be no land take from commercial properties, the construction works have the potential to temporarily disrupt businesses within the study area due to potential access restrictions to roads and associated reduction in vehicle traffic and footfall. Similarly, during the construction phase there will be potential access restrictions to roads and disruption from construction traffic, causing disruption of accesses to local businesses.
- 16.5.19. A qualitative assessment of changes to accessibility has been undertaken to consider disruption to access due to construction activities. This includes an assessment of:
- a. The current access arrangements to the business (i.e., the method of primary access by customers, including likely methods of travel and availability of parking);
  - b. Distance of the business from the construction works associated with the Proposed Scheme; and
  - c. The potential reduction in road and footway access due to the construction works, and associated traffic impacts.

### **ASSESSMENT OF SIGNIFICANCE**

- 16.5.20. The assessment of likely significant effects as a result of the Proposed Scheme has considered the construction phase, operational phase, and decommissioning. The significance level attributed to each effect, as set out in **Table 4.1 in Chapter 4 (EIA Methodology)**, has been assigned based on the magnitude of change due to the Proposed Scheme and the sensitivity of the affected receptor.
- 16.5.21. For Population, Health and Socio-economics, there is no accepted definition of what constitutes a significant, or not significant, effect. As such, based on professional judgement, effects will be assessed on the basis of:
- a. **Consideration of sensitivity of receptors:** Specific values in terms of sensitivity are not attributed to socio-economic resources / receptors due to their diversity in nature and scale, however the assessment instead takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, on their ability to respond to change;
  - b. **Magnitude of impact:** This entails consideration of the size of the impact on people or businesses in the context of the area in which the effects will be experienced;
  - c. **Scope for adjustment or mitigation:** This assessment is concerned in part with economies which adjust themselves continually to changes in supply and demand. The scope for the changes brought about by the Proposed Scheme to

be accommodated by market adjustment will therefore be a criterion in assessing effect significance;

- d. Duration:** This entails consideration of the duration of impact as either short, medium or long term. Impacts lasting less than a year are considered short term, impacts lasting between one and four years are considered medium term and impacts lasting five or more years are considered long term.
- e. Permanence:** This involves identifying whether the impact will be permanent or temporary. Generally, impacts during the construction phase of the Proposed Scheme are considered temporary, and impacts during the operational phase of the Proposed Scheme are considered permanent.

16.5.22. The effects are defined as follows:

- a. Beneficial:** Classifications of significance indicate an advantageous or beneficial impact on an area, which may be minor, moderate, or major;
- b. Negligible:** Classifications of significance indicate imperceptible impacts on an area; and
- c. Adverse:** Classifications of significance indicate a disadvantageous or adverse impact on an area, which may be minor, moderate, or major.

16.5.23. Sensitivity criteria and magnitude of impact have been assigned according to Table 3.11 (**Table 16.3**) and Table 3.12 (**Table 16.4**) respectively in the DMRB, LA112 guidance (Highways England, 2019).



**Table 16.3 - Environmental Value (Sensitivity) and Descriptions**

<b>Receptor value (sensitivity)</b>	<b>Description</b>
Very High	<p>Community land and assets where there is a combination of the following:</p> <ol style="list-style-type: none"> <li>1) complete severance between communities and their land / assets, with little / no accessibility provision;</li> <li>2) alternatives are only available outside the Local Planning Authority area;</li> <li>3) the level of use is very frequent (daily); and</li> <li>4) the land and assets are used by the majority (&gt;=50%) of the community.</li> </ol> <p>Development land and businesses:</p> <ol style="list-style-type: none"> <li>1) existing employment sites (excluding agriculture) and land allocated for employment (e.g., strategic employment sites) covering &gt;5ha.</li> </ol>
<b>High</b>	<p>Community land and assets where there is a combination of the following:</p> <ol style="list-style-type: none"> <li>1) there is substantial severance between community and assets, with limited accessibility provision;</li> <li>2) alternative facilities are only available in the wider Local Planning Authority area;</li> <li>3) the level of use is frequent (weekly); and</li> <li>4) the land and assets are used by the majority (&gt;=50%) of the community.</li> </ol> <p>Development land and businesses:</p> <ol style="list-style-type: none"> <li>1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering &gt;1 - 5ha.</li> </ol>
<b>Medium</b>	<p>Community land and assets where there is a combination of the following:</p> <ol style="list-style-type: none"> <li>1) there is severance between communities and their land / assets but with existing accessibility provision;</li> <li>2) limited alternative facilities are available at a local level within adjacent communities;</li> <li>3) the level of use is reasonably frequent (monthly); and</li> <li>4) the land and assets are used by the majority (&gt;=50%) of the community.</li> </ol> <p>Development land and businesses:</p> <ol style="list-style-type: none"> <li>1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering &lt;1ha.</li> </ol>
<b>Low</b>	<p>Community land and assets where there is a combination of the following:</p> <ol style="list-style-type: none"> <li>1) limited existing severance between community and assets, with existing full Disability Discrimination Act (DDA) DDA 1995 [Ref 2.N] compliant accessibility provision;</li> <li>2) alternative facilities are available at a local level within the wider community;</li> <li>3) the level of use is infrequent (monthly or less frequent); and</li> <li>4) the land and assets are used by the minority (&gt;=50%) of the community.</li> </ol> <p>Development land and businesses:</p>

Receptor value (sensitivity)	Description
	1) proposed development on unallocated sites providing employment with planning permission / in the planning process.
<b>Negligible</b>	<p>Community land and assets where there is a combination of the following:</p> <ol style="list-style-type: none"> <li>1) no or limited severance or accessibility issues;</li> <li>2) alternative facilities are available within the same community;</li> <li>3) the level of use is very infrequent (a few occasions yearly); and</li> <li>4) the land and assets are used by the minority (&gt;=50%) of the community.</li> </ol> <p>Development land and businesses:</p> <ol style="list-style-type: none"> <li>1) N / A.</li> </ol>

**Table 16.4 - Magnitude of Impact and Typical Descriptions**

Magnitude of impact (change)	Description
<b>Major</b>	<p>Private properties and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ol style="list-style-type: none"> <li>1) loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and / or</li> <li>2) introduction (adverse) or removal (beneficial) of complete severance with no / full accessibility provision.</li> </ol>
<b>Moderate</b>	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ol style="list-style-type: none"> <li>1) partial loss of / damage to key characteristics, features or elements, e.g., partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and / or</li> <li>2) introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.</li> </ol>
<b>Minor</b>	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ol style="list-style-type: none"> <li>1) a discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristic, features or elements, e.g., amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and / or</li> <li>2) introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.</li> </ol>

<b>Magnitude of impact (change)</b>	<b>Description</b>
<b>Negligible</b>	Private property and housing, community land and assets, development land and businesses and agricultural land holdings: 1) very minor loss or detrimental alteration to one or more characteristics, features or elements. e.g., acquisition of non-operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and / or 2) very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.
<b>No change</b>	No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction.

- 16.5.24. **Table 16.3** categorises a receptor's sensitivity as very high; high; medium; low and negligible.
- 16.5.25. **Table 16.4** categorises magnitude as follows:
- a. Major impact:** where the Proposed Scheme could be expected to have a considerable effect (either beneficial or adverse) on receptors;
  - b. Moderate impact:** where the Proposed Scheme could be expected to have a partial effect (either beneficial or adverse) on receptors;
  - c. Minor impact:** where the Proposed Scheme could be expected to have a perceptible effect (either beneficial or adverse) on receptors;
  - d. Negligible:** where the Proposed Scheme could be expected to result in a small, barely perceptible effect (either beneficial or adverse) on receptors; and
  - e. No change:** Where no discernible effect is expected as a result of the Proposed Scheme on receptors.
- 16.5.26. As per **Table 4.1** in **Chapter 4 (EIA Methodology)**, significant effects are those which are assigned as moderate, large or very large based on the sensitivity of receptors and magnitude of impact. The remaining effects (slight or neutral) are categorised as non-significant in EIA terms.

## **METHOD OF BASELINE DATA COLLECTION**

### **Desk Study**

- 16.5.27. The assessment of Population, Health and Socio-economics is qualitative and informed by desk-based study and consultation with SDC and NYCC. The desk study is informed by the data sources described in **Paragraph 16.5.30** below.

### **Site Visits and Surveys**

- 16.5.28. No Site visits or surveys have been undertaken for the purposes of the Population, Health and Socio-economics assessment.

### **Guidance and Data**

- 16.5.29. The following guidance documents have been used during the preparation of this chapter:
- a.** The Design Manual for Roads and Bridges (DMRB) LA112 Population and human health (Highways England, 2019) which sets out the approach and methodology for the assessment of the environmental effects on users of PRow, private property, community land and assets, development land and business, and agricultural land holdings, from construction, operation and maintenance of highways projects.
  - b.** English Partnerships Additionality Guide (Homes and Communities Agency, 2014). This guide can be used to assess generation of employment opportunities in the absence of established DMRB guidance.

- c. Capturing Carbon at Drax: Delivering Jobs, Clean growth and Levelling up the Humber (Vivid Economics Limited, 2021). This report states calculations of anticipated gross employment generation as a result of the Proposed Scheme. These calculations can be used to aid the assessment of increased demand for accommodation and community facilities due to an influx of workers, and the generation of employment opportunities.

16.5.30. The following data sources have been used for the collection of baseline information as part of the preliminary assessment:

- a. English Indices of Multiple Deprivation;
- b. NOMIS Labour Market Profiles;
- c. Office for National Statistics;
- d. Public Health England Local Authority Health Profiles; and
- e. Google Maps.

### **Assessment Assumptions and Limitations**

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

#### **Assumptions**

- a. Vulnerable groups, including those with protected characteristics as defined by the Equality Act 2010 would be assumed to be present throughout the study area, additionally where specific areas have been identified as deprived, these areas will be emphasised;
- b. Population impacts have been identified down to the lowest defined population group available according to ONS survey outputs (lower super output areas). Further granularity of data is not available. No significant changes or limitations in these datasets have been identified that would affect the robustness of the assessment for EIA purposes;
- c. COVID-19 has led to unprecedented changes in working patterns, employment and travel needs, over a short period of time. There is a great deal of uncertainty as to how these changes will continue to develop over the medium and long term, particularly over the period covered by the EIA;
- d. As described in Chapter 2 (Site and Project Description) of this ES, 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 assessed in Chapter 18 (Cumulative Effects) (document reference 6.1.18); and

- e. Detailed construction information is not yet available for the Proposed Scheme and this assessment therefore draws on the professional experience of the assessor of other similar projects.

### **Limitations**

- a. This assessment relies, in part, on data provided by third parties (e.g., OS Mapping, Local Authorities and ONS). The most up-to-date data available at the time of writing have been used. No significant changes or limitations in these datasets have been identified that would affect the robustness of the assessment for EIA purposes.

## **16.6. STUDY AREA**

- 16.6.1. The study area has been defined using para 3.6, 3.6.1, and 3.6.2 of the Design Manual for Roads and Bridges (DMRB) guidance Volume 11, Section 3, Part 6, LA112 Population and Human Health (Highways England, 2019). The guidance advises a study area of 500 m surrounding a project boundary for the land use and accessibility elements of the assessment unless other study areas are considered to be more appropriate for a particular receptor. Where the study area differs from the 500 m catchment, this is described below.
- 16.6.2. The study areas for the Proposed Scheme are as follows:
  - a. Accommodation and Community facilities: construction workers required to relocate would be based within local towns within close proximity to the Proposed Scheme, such as Selby and Goole. These localities are the closest to the Proposed Scheme which are likely to offer a range of temporary accommodation<sup>1</sup> options and associated facilities (such as shops, cafes and restaurants, and recreational facilities). Therefore, the study area for this effect is the towns of Selby, Goole, and Camblesforth, and a catchment of 2 km from the Order Limits; these being the most likely locations for temporary construction workers to reside and access services;
  - b. Employment generation: The assessment of impacts on the economy and employment focuses on the Yorkshire and the Humber region; this is because much of the construction phase and operational phase workforce would be drawn from the regional labour market (in line with the leakage rate within the region, outlined in 16.5.11); and
  - c. Development land and businesses: Those businesses or land parcels located within 500 m of the Order Limits, or those which have a direct means of access within the Order Limits are assessed.

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<sup>1</sup> For the purposes of this assessment, 'temporary' accommodation is used to describe hotel, bed and breakfast, and other short term accommodation providers.

## 16.7. BASELINE CONDITIONS

### EXISTING BASELINE

#### Local Area Context

- 16.7.1. The Proposed Scheme is located in the local authority of SDC, within the NYCC area, in the Yorkshire and the Humber region. The administrative boundary of East Riding of Yorkshire ('ERoY') is approximately 1.7 km to the east of the existing Drax Power Station.
- 16.7.2. The nearest settlements are the villages of Drax (approximately 700 m southeast of the Order Limits); Long Drax (approximately 900 m northeast of the Order Limits); Hemingbrough (approximately 2 km north of the Order Limits); and Camblesforth (approximately 1 km southwest of the Order Limits).
- 16.7.3. There are a variety of land uses surrounding the Site including private properties, community facilities, businesses, and agricultural land.

#### Population

- 16.7.4. The resident population of SDC was 91,700 residents in 2020, making it the fourth most populous of the seven local authority areas in NYCC (Nomis, 2020).

**Table 16.5 - Population groups (% of total population) by age range**

Location	Age Range (% of total population)					
	0-14	15-24	25-29	30-44	45-64	65+
<b>Selby</b>	17.3	9.2	5.7	18.3	28.9	20.6
<b>Yorkshire and the Humber</b>	17.9	12.4	6.8	18.4	25.6	18.9
<b>England</b>	18.1	11.7	6.7	19.5	26.6	18.5

- 16.7.5. The data in **Table 16.5** indicates that the population in SDC is slightly older than the national average, with 20.6% of the population aged over 65, compared to 18.5% in England and 28.9% of the population aged between 45-64, compared to 26.6 for England. There is also a lower proportion of the population aged between 15-24 (9.2%) than the regional (12.4%) and national (11.7%) averages (Office for National Statistics, 2021).
- 16.7.6. The working age population is similar to the Yorkshire and the Humber, and England averages, with 61.1% of SDC residents aged between 16-64, compared to 62.1% in Yorkshire and the Humber and 62.3% in England (Office for National Statistics, 2021). The percentage of the working age population which were economically active

between October 2020 and September 2021 in SDC was 78%. This is in line with both Yorkshire and the Humber (77.1%) and England (78.8%) (Nomis, 2021).

### **Index of Multiple Deprivation (IMD, 2019)**

- 16.7.7. The Indices of Deprivation present a comprehensive measure of relative deprivation. The Indices of Deprivation 2019 use 37 separate indicators, organised across seven ‘domains’ of deprivation, which are combined to give the overall Indices of Multiple Deprivation. This is an overall measure of multiple deprivation experienced by people living in an area.
- 16.7.8. Of the 317 local authorities in England, SDC is ranked 252nd in terms of overall deprivation, where a rank of one is the most deprived and a rank of 317th is the least deprived (Ministry of Housing, Communities & Local Government, 2019). This rank places SDC in the 30% least deprived local authorities in England.

### **Life Expectancy and Mortality**

- 16.7.9. Life expectancy within the SDC area indicate that on average, residents live slightly longer in SDC compared with the regional and England average, for both males and females, as shown in **Table 16.6** (Public Health England, 2020).

**Table 16.6 - Life Expectancy at birth**

<b>Location</b>	<b>Life Expectancy at Birth (years)</b>	
	<b>Males</b>	<b>Females</b>
<b>Selby</b>	80.2	83.9
<b>Yorkshire and the Humber</b>	78.4	82.2
<b>England</b>	79.4	83.1

### **Economy and Employment**

- 16.7.10. The NOMIS Job Densities Report is available on a Local Authority-wide and sub-regional level and indicates the availability of employment and labour demand. As of 2020, the job density level (i.e., the ratio of total jobs to the population aged 16-64) in SDC was 0.75. This is slightly lower than the averages across Yorkshire and the Humber (0.79) and Great Britain (0.84) and indicates slightly fewer employment opportunities within SDC when compared with the region (Nomis, 2020).
- 16.7.11. The service sector (Industry Sectors G-S) accounts for 64.7% of jobs, with the second largest proportion of jobs in the Manufacturing sector (23.5%); notably higher than the proportion within the Yorkshire and the Humber region (11.4%) and in England as a whole (7.9%) (Nomis, 2020).



- 16.7.12. In 2020, the number of jobs identified in the Business Register and Employment Survey (BRES) before SDC were 34,000, 73.5% of which were full-time and 26.5% part-time (Nomis, 2020). Drax Power Station is a key employer within the region, directly employing over 700 employees on-site, and supporting over 4,200 indirect jobs in the Yorkshire and the Humber region (Drax, 2021).
- 16.7.13. The proportion of people aged between 16-64 in SDC holding NVQ1 and above is 83.3%; broadly in line with the Yorkshire and the Humber (86.4%) and the Great Britain (87.7%) averages (Nomis, 2020). It is notable however, that those people achieving degree level qualifications (NVQ4 and above) in SDC (29.3%) is somewhat lower than both the Yorkshire and the Humber (37.0%) and Great Britain (43.1%) averages (Nomis, 2020). Overall, this suggests a slightly lower skilled workforce within SDC compared to the region and wider national levels.

### **Local Businesses**

- 16.7.14. A number of businesses are situated within approximately 500 m of the Order Limits. These include:
- a. Selby Plant Hire – immediately adjacent (off Main Road);
  - b. Lytag – 30 m north (off the Drax Power Station boundary road);
  - c. East Yorkshire Caravan Salvage Ltd – 50 m east (off Main Road);
  - d. Hales Garth Kennels – 70 m east (Hales Lane, off Main Road);
  - e. Alert Logistics – 160 m east (off Main Road);
  - f. Dove Cottage Bed and Breakfast – 410 m east (Back Lane, off Main Road);
  - g. Empire Equestrian Embroidery – 410 m east (off Main Road); and
  - h. Perfectly Fresh – 500 m west (Brigg Lane, off A645).

### **Local Accommodation**

- 16.7.15. In the towns of Selby and Goole, there are a number of temporary and short-term accommodation providers, including hotels, bed and breakfasts, and serviced apartments. There are no accommodation providers located in Camblesforth.
- 16.7.16. In Selby there are five providers:
- a. The Wishing Well – hotel and pub (40 bedrooms) (The Wishing Well, n.d.);
  - b. The George Inn – pub with rooms (25 bedrooms) (Stonegate Group, n.d.);
  - c. Hazeldene Guest House – B&B (seven bedrooms) (Hazeldene Selby, n.d.);
  - d. Sallow Tree House – hotel (21 bedrooms) (Sallow Tree House, n.d.); and
  - e. The Waterfront – hotel (10 rooms) (The Waterfront, n.d.).
- 16.7.17. In Goole there are six providers:
- a. The Old George – pub with rooms (five bedrooms) (The Old George, n.d.);
  - b. The Briarcroft Guest House – B&B (eight bedrooms) (The Briarcroft Guest House, n.d.);
  - c. The Clifton – hotel (nine bedrooms) (The Clifton, n.d.);

- d. The Drake Inn– pub with rooms (10 bedrooms) (The Drake Inn, n.d.);
  - e. The Lowther Hotel (16 bedrooms) (The Lowther Hotel, n.d.); and
  - f. Phoenix Serviced Apartments (eight bedrooms) (Phoenix Apartments, n.d.).
- 16.7.18. In addition to the accommodation providers identified in Selby and Goole, the only other accommodation provider within the 2 km catchment surrounding the Order Limits is Dove Cottage Bed and Breakfast (two bedrooms) (Tripadvisor, n.d.), which lies approximately 250 m from the Order Limits in Drax village. Outside of the main local centres, there are limited services for construction workers to access, and this is reflected in the lack of accommodation provision outside Selby and Goole.
- 16.7.19. It should also be noted that, although outside of the 2 km catchment surrounding the Site, the Premier Inn Goole hotel (41 bedrooms) (Premier Inn Goole Hotel, n.d.) located approximately 2.5 km west of Goole may also be used by temporary construction workers given the greater number of rooms available than some other local providers.
- 16.7.20. Including the Premier Inn, the total capacity at the temporary accommodation providers within the locality amounts to 202 bedrooms. It is noted however that the cities of York, Doncaster, and Leeds are all situated approximately 20 minutes away by road and offer a considerable range of accommodation options which are also likely to be accessible to many of the temporary construction workers who relocate to the area.

### **Local Facilities**

- 16.7.21. In the towns of Selby and Goole there are a diverse range of facilities including shops, parks and open spaces, medical facilities, and restaurants. These are the predominant types of services that construction workers who are temporarily relocating to the area are likely to access. Both towns have doctors' surgeries as well as community hospitals, which offer a variety of outpatient and non-emergency care services. There are fewer facilities within Camblesforth and other smaller settlements within 2 km of the Order Limits, such as Drax town.
- 16.7.22. Selby and Goole both offer a range of convenience and comparison retailers, including clothing shops, pharmacies, DIY, and home décor shops. Selby has a slightly greater number of retailers than Goole, however both towns provide a wide range of retail establishments which serve the local population. Camblesforth has several shops and a hairdresser, however there are no retailers in Drax.
- 16.7.23. Selby has five chain supermarkets (including one superstore) and Goole has four supermarkets (including one superstore). Both towns also have a number of smaller food retailers, and convenience stores. Additionally, there are a number of cafes, pubs, restaurants, and fast-food takeaways in both Selby and Goole, which offer a diverse range of dining options in both towns. Camblesforth and Drax each have a pub, and there is a bakery in Drax. Drax Sports and Social Club is located approximately 60 m south of the Order Limits.

16.7.24. Parks and open spaces offer users opportunities for active and passive recreation, The Drax Golf Club is located 40 m south of the Order Limits at closest proximity. The northern extent of its car park, and part of its eastern extent, are located adjacent to the Order Limits. The Outdoor Cinema Selby and Towerfest Country Music Festival are held in the fields south of the A645, which is approximately 10 m south of the Order Limits at closest proximity. Furthermore, there are a number of parks which are easily accessible from the town centres of both Selby and Goole.

### **Development Land Parcels**

16.7.25. Development land (for the purposes of this assessment scope) is land designated for employment purposes within the SDC Site Allocations Plan and / or land where planning permission for development has been granted or is pending.

16.7.26. As per the SADPD (2021), there is no development land allocated within 500 m of the Order Limits. However, there are a number of plots where planning permission for development has been granted (or is pending) within 500 m of the Order Limits as follows:

- a. SEGL2 (Scotland to England Green Link 2) project (2021/0450/SCP): An underground HVDC cable approximately 500 km in length between Peterhead (Aberdeenshire) and Drax (North Yorkshire) which will run into the substation at Drax Power Station. The planning application decision is currently pending;
- b. Barlow Ash Mound, North West of Drax Power Station, New Road, Drax, Selby (NY/2022/0027/SCO): Proposed additional recovery of ash resource project. The planning application decision is currently pending;
- c. Land Off New Road Drax Selby North Yorkshire (2020/1357/FULM): Development of an energy storage facility including components such as battery storage containers; substations; power conversion systems; transformers and associated switchgear. The planning application was approved in May 2021;
- d. Drax Power Station New Road Drax Selby North Yorkshire (2020/0994/FULM): Demolition of Flue Gas Desulphurisation (FGD) Plant and associated restoration works. The planning application was approved in January 2021; and
- e. Land Off Hales Lane Drax Selby North Yorkshire (2021/1089/FULM): Development of a battery storage facility, associated infrastructure, access and grid connection. The planning application decision is currently pending.

### **FUTURE BASELINE**

16.7.27. A number of demographic factors are likely to experience natural fluctuation and change, including total population and the proportion of working age residents, with population trends also seeing an ageing population. The resident population in Selby is expected to increase by 5.8% in the period to 2028 which is over twice as much as the anticipated increase in Yorkshire and the Humber over the same time period (2.3%) (Office for National Statistics, 2021). Natural population increase may place additional demand on local services; however, it is anticipated that these will also evolve over time to meet or adapt to changes in demand.

## 16.8. SENSITIVE RECEPTORS

- 16.8.1. The following sensitive receptors, as identified through the data sources stated in **Paragraph 16.5.30** and discussed above, have been assessed:
- a. Local economic receptors (i.e., working age individuals within the study area, local businesses who may provide services or accommodation, either through supply chain linkages or accommodation to construction employees, and development land); and
  - b. Community receptors (i.e., community land and assets).

## 16.9. PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS

- 16.9.1. This section details the preliminary assessment of significant effects taking account of primary and tertiary mitigation as described in Chapter 2 (Site and Project Description) but in the absence of secondary mitigation. Secondary mitigation for the Proposed Scheme is described in section 16.10 of this chapter below.
- 16.9.2. The full sets of results, including a full list of those receptors identified as experiencing no change, negligible or minor effects (not significant) during the preliminary assessment of likely impacts and effects, have been reported in **Appendix 16.1 (Effects that have been determined to be not significant)** of this ES (document reference 6.3.16.1).

### CONSTRUCTION PHASE AND DECOMMISSIONING

#### Generation of Direct, Indirect, and Induced Employment Opportunities

- 16.9.3. Construction employment represents a positive economic effect that can be estimated as a function of the scale and type of construction (infrastructure and buildings). The construction of the Proposed Scheme could generate an annual average of 4,000 direct jobs, 1,600 indirect jobs and 2,500 induced jobs which, while temporary during construction, would provide local and regional benefits associated with the construction of the Proposed Scheme. The direct jobs have been estimated using the Vivid Economics (Vivid Economics Limited, 2021) method by multiplying the market share of the goods and services relevant to the Carbon Capture and Storage (CCS) industry, which will be captured by UK firms, with the capex expenditure required to bring the Proposed Scheme online. The Vivid Economics Investment Impact Model (IIM) is an input-output model capturing interactions and feedback loops between all sectors in an economy, allowing for the calculation of indirect and induced jobs (Vivid Economics Limited, 2021).
- 16.9.4. Projections of annual average employee numbers as a result of the Proposed Scheme suggest that 4,000 gross direct jobs would be created on-site per annum (Vivid Economics Limited, 2021). However, in order to determine the net benefit, leakage, displacement and multiplier effects must be taken into account (see **Section 16.5**).

- 16.9.5. Taking the projected 4,000 gross employees on the basis of Vivid Economics projections (Vivid Economics Limited, 2021), **Table 16.7** presents a breakdown of the temporary employment generated by the Proposed Scheme taking leakage, displacement and multiplier effects into account as per Additionality Guidance on determining the indirect and induced impact of projects (Homes and Communities Agency, 2014). The total net additional employment created within the SDC and ERoY area as a result of the Proposed Scheme is therefore estimated to be 3,825 employees per annum, whilst 675 net jobs will be created at the Yorkshire and the Humber level, resulting in a total net employment generation of 4,500 jobs on average per annum during the construction phase.
- 16.9.6. Applying leakage, displacement, and multiplier effects results in net projected indirect and induced employment in the SDC and ERoY area of 1,275 employees per annum, whilst 225 net indirect and induced jobs will be created at the Yorkshire and the Humber level, resulting in a total net indirect and induced employment generation of 1,500 jobs on average per annum during the construction phase.

**Table 16.7 - Construction Employment Generation Per Annum**

<b>Employment Generation</b>	<b>Local level</b>	<b>Regional level</b>	<b>Total</b>
<b>Gross Direct Employment</b>	3,400	600	4,000
<b>Displacement</b>	-850	-150	-1,000
<b>Net Direct Employment</b>	2,550	450	3,000
<b>Net Indirect and Induced Employment</b>	1,275	225	1,500
<b>Total Net Employment</b>	<b>3,825</b>	<b>675</b>	<b>4,500</b>

Source: WSP calculations

- 16.9.7. Whilst an average of 4,000 gross direct construction employees (4,500 total net construction employees) would be employed per annum as a result of the Proposed Scheme, the number of construction employees on-site at any one time would be considerably lower. The total peak construction workforce on-site is projected to be 1,000 construction workers; this figure represents the capacity in the peak month of construction, August 2026 (**Chapter 5 Traffic and Transport**) (document reference 6.1.5).
- 16.9.8. By promoting the use of local suppliers and contractors (including activities such as supplier and skills engagement programmes), the Applicant will ensure that local people and businesses have the ability to benefit from the Proposed Scheme during the construction phase. It is estimated that approximately 80% of the total construction workforce will be comprised of local workers (with 20% transient / hotel-based workers who are required to fill more specialist roles); further detail is provided

in **Chapter 5 (Traffic and Transport)** of this ES (document reference 6.1.5). Dependent on the contractor appointed, there may be opportunities for local people to access training opportunities through working in partnership with key local stakeholders (such as Jobcentre Plus, local colleges, business alliances and skills improvement programmes), providing opportunities for training in the construction industry and equipping them with a skilled trade. The terms on which the Applicant would promote the initiatives as described above, would be determined at a later stage of the application, including during consideration of appropriate planning obligations.

- 16.9.9. The sensitivity of economic receptors at the local (SDC and ERoY) level is considered to be medium due to the relative levels of deprivation which are present within some areas and the importance of employment opportunities locally associated with the energy sector. The magnitude of impact is considered to be moderate at the local level, given the number of construction jobs generated relative to the size of the SDC and ERoY economy. Therefore, there is likely to be a direct, temporary, long-term, **moderate beneficial (significant)** effect on the local economy prior to the implementation of mitigation measures.

#### **OPERATIONAL PHASE**

- 16.9.10. There are no significant operational phase effects identified.

### **16.10. DESIGN, MITIGATION AND ENHANCEMENT MEASURES**

- 16.10.1. The assessment detailed in **Section 16.9** above has identified that there are no significant adverse effects identified for the Proposed Scheme and as a result no design or mitigation measures are proposed.

#### **Opportunities for Environmental Enhancement**

- 16.10.2. The opportunities for environment enhancement for Population, Health and Socio-Economics are as follows:
- a. Promote the use of local suppliers and contractors to ensure local people and businesses have the ability to benefit from the Proposed Scheme during the construction phase; and
  - b. Develop opportunities for local people to access training opportunities through working in partnership with key local stakeholders.

### **16.11. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS**

- 16.11.1. This section details the assessment of significant effects taking account of the secondary and tertiary mitigation detailed in **Section 16.10** above.

#### **CONSTRUCTION PHASE AND DECOMMISSIONING**

- 16.11.2. Given there is no mitigation in relation to the generation of direct, indirect and induced construction employment, the pre-mitigation finding remains the same. Therefore,

there is likely to be a direct, temporary, long-term **moderate beneficial** (significant) residual effect on the local economy.

### **OPERATIONAL PHASE**

16.11.3. There are no significant operational phase effects identified.

### **16.12. CUMULATIVE EFFECTS**

16.12.1. There is likely to be a beneficial cumulative effect associated with direct, indirect, and induced employment opportunities during the construction and operational phases between the relevant other developments and the Proposed Scheme.

16.12.2. There may be a temporary slight adverse cumulative effect on increased demand for accommodation and community facilities, and access to development land and businesses during the construction phase between the relevant other developments and the Proposed Scheme, however, this would not be significant.

16.12.3. A detailed assessment of intra-project combined effects and inter-project cumulative effects for the Proposed Scheme has been carried out and is presented in **Chapter 18 (Cumulative Effects)** (document reference 6.1.18) of this ES, as well as **Appendix 18.4 (Justification of Scoping In / Out of Stages 3 and 4 of the Assessment)** (document reference 6.3.18.4) and **Appendix 18.5 (Inter-project Assessment Matrix)** (document reference 6.3.18.5).

### **16.13. IN-COMBINATION CLIMATE CHANGE IMPACTS**

16.13.1. The in-combination climate change impact assessment considers the extent to which climate change may alter the effects which have already been identified within this chapter.

16.13.2. The effects that have been considered within this chapter have been assessed against likely climate hazards, as set out within **Chapter 14 (Climate Change Resilience)** (document reference 6.1.14), and the effects identified are not anticipated to change as a result of these hazards.

### **16.14. MONITORING**

16.14.1. There are no proposed monitoring arrangements for Population, Health and Socio-Economics.

**Table 16.8 - Summary of Population, Health and Socio-economic Effects**

<b>Receptor</b>	<b>Potential Effects</b>	<b>Additional Mitigation</b>	<b>Residual Effects</b>
<b>Generation of direct, indirect, and induced employment opportunities (local level) during construction</b>	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.	There are no additional mitigation measures required or proposed in relation to this effect.	<b>Moderate Beneficial (significant)</b> T / D / LT

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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