ENVIRONMENTAL STATEMENT – VOL 1 – CHAPTER 1 INTRODUCTION

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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DOCUMENT OWNER: WSP UK Limited

AUTHOR: M. Marsh

APPROVER: S. Falconer

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1. INTRODUCTION

1.1. BACKGROUND

1.1.1. Drax Power Limited (the Applicant) intends to install post combustion carbon capture technology on up to two of the four existing 660-megawatt electrical ('MWe') biomass power generating units at the Drax Power Station in Selby, North Yorkshire. This will remove approximately 95% of the carbon dioxide from the flue gas from these two Units, resulting in overall negative emissions of carbon dioxide.

1.1.2. Bioenergy with carbon capture and storage (BECCS) is a technology that has been developed to remove carbon dioxide from the atmosphere. Delivering BECCS will enable the Applicant to capture the carbon dioxide emitted during electricity generation, permanently removing more carbon dioxide from the atmosphere than is produced throughout the process – creating what is known as negative emissions.

1.1.3. Biomass will continue to be sourced from sustainable sources, primarily sustainably managed forests in accordance with applicable national legislation and regulation, certification schemes and the Applicant's own Sustainable Sourcing Policy (Drax, 2019). The forests used to supply sustainable biomass absorb carbon dioxide as the trees grow. When that same sustainable biomass is combusted in electricity production, the carbon dioxide released is offset by the amount of carbon dioxide it absorbed from the atmosphere while it was growing. By capturing any carbon dioxide emitted as part of the combustion process, for storage in safe underground deposits, the process of biomass electricity generation becomes carbon negative, as more carbon dioxide has been removed from the atmosphere than has been added.

1.1.4. The Proposed Scheme comprises an extension to the existing biomass generating units and includes the following:

- Carbon capture infrastructure at the Drax Power Station on up to two biomass generating units;
- Infrastructure for the treatment and compression of carbon dioxide at the Drax Power Station to allow connection to a National Grid carbon dioxide transport and storage system;
- Minor vegetation and street furniture management to facilitate the transport of abnormal indivisible loads;
- Areas for habitat provision; and
- Other works, as set out in section 2.2 of **Chapter 2 (Site and Project Description)** of this ES (document reference 6.1.2).

1.1.5. A full description of the Proposed Scheme is given in **Chapter 2 (Site and Project Description)** and the Order Limits are shown on **Figure 1.1 (Order Limits)** (document reference 6.2.1.1). The **Indicative Site Layout Plan** is shown on **Figure 1.2** (document reference 6.2.1.2) and the Off-Site Habitat Provision Area is shown on **Figure 1.3 (Off-Site Habitat Provision Area)** (document reference 6.2.1.3).

1.1.6. The Environmental Statement ('ES') has been prepared on behalf of the Applicant. This ES is one of several documents produced as part of the DCO Application for the Proposed Scheme. This ES should be read in conjunction with the ES **Non-Technical Summary** ('NTS') in **Volume 4** (document reference 6.4), which provides a non-technical explanation of the Proposed Scheme and likely significant effects.

1.2. DEFINITION OF AN EIA

1.2.1. The term 'Environmental Impact Assessment' ('EIA') describes a procedure that must be followed for certain types of projects before they can be granted consent. The procedure is a means of drawing together an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted environmental effects and the scope for avoiding, preventing, reducing or, if possible, offsetting them are properly understood by the public and the authority granting consent (the 'determining authority') before it makes its decision.

1.3. REQUIREMENT FOR EIA

1.3.1. The Proposed Scheme falls under Schedule 1, paragraph 23 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations 2017') (HM Government, 2017) as 'Installations for the capture of carbon dioxide streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations referred to in this Schedule, or where the total yearly capture of carbon dioxide is 1.5 megatonnes or more'. The Proposed Scheme will have the capability of capturing in excess of 1.5 megatonnes of carbon dioxide per annum per biomass unit and is therefore classified as 'EIA development' and as such the DCO Application will be supported by an EIA.

1.3.2. The Proposed Scheme has not been subject to an EIA Screening Request or Opinion, as all development listed within Schedule 1 is automatically classified as EIA development under the EIA Regulations 2017.

1.3.3. A Regulation 8(1)(b) (of the EIA Regulations 2017) notification was submitted to the SoS along with the **EIA Scoping Report (Appendix 1.1)** (document reference 6.3.1.1) and a request for a Scoping Opinion under Regulation 10 in January 2021. The submission confirmed that the Applicant intends to submit a DCO Application. The SoS adopted the **Scoping Opinion (Appendix 1.2)** (document reference 6.3.1.2) on 26 February 2021.

1.4. REQUIREMENT FOR A DCO

1.4.1. The Proposed Scheme would be an integral part of the future operation of the biomass generating units, by capturing an unwanted by-product of the generation of electricity and delivering negative emissions in the process. Like the stack and other emissions abatement equipment that forms an integral part of thermal plant, the Carbon Capture Plant has been designed to be an integrated part of the electricity generation process. It works alongside the wider optimisation and alterations of the

generating units to work as a single integrated system to deliver improved emissions performance for the relevant units and would not be run independently without consideration of the generation profile of the relevant generation units. Accordingly, it is an integral part of the electricity generation process.

1.4.2. The Proposed Scheme is therefore an extension of an existing generating unit with capacity of more than 50 MW, so is a Nationally Significant Infrastructure Project ('NSIP'), as set out in the Planning Act 2008 (HM Government, 2008), Sections 14(1)(a) and 15(2). As such, the Applicant is required to request a DCO in order to construct and operate the Proposed Scheme.

1.4.3. The Department of Energy and Climate Change ('DECC') (now the Department for Business, Energy and Industrial Strategy) published a number of National Policy Statements ('NPSs') in relation to energy infrastructure, which were designated by the Secretary of State ('SoS') for Energy and Climate Change in July 2011, with draft versions of the updated NPSs published in September 2021.

1.4.4. The NPSs relevant to the Proposed Scheme are set out below:

- Overarching National Policy Statement for Energy: EN-1 (NPS EN-1) (Department of Energy and Climate Change, 2011): This document sets out national policy for energy infrastructure as defined by the Planning Act 2008 and provides an umbrella 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 SoS and set out the need for new energy infrastructure; and
- National Policy Statement for Renewable Energy: EN-3 ('NPS EN-3') (Department of Energy and Climate Change, 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.

1.4.5. The Government is currently reviewing the Energy NPSs and as such 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 (1 November – 12 December 2021). Accordingly, the draft updated versions of the NPSs were not addressed as part of the statutory consultation material, but have now been considered as part of this ES and DCO Application and their relevance is set out in each topic chapter.

1.4.6. The **Planning Statement** (document reference 5.2) sets out the Application's compliance with policy requirements.

1.5. PRELIMINARY ENVIRONMENTAL INFORMATION

1.5.1. The Preliminary Environmental Information Report (PEIR) was published on 1 November 2021 and was produced to inform the public and stakeholders of the Applicant's preliminary assessment of the likely significant environmental effects of

the Proposed Scheme. Regulation 12 of the EIA Regulations details that the Statement of Community Consultation (required by section 47 of the Planning Act 2008) must set out how the applicant intends to publicise and consult on the preliminary environmental information.

1.5.2. PEI is defined in Regulation 12(2) as information referred to in Regulation 14(2) which:

- Has been compiled by the Applicant; and
- Is reasonably required for the consultation bodies to develop an informed view of the likely significant environment effects of the development (and of any associated development).

1.5.3. All issues raised during the consultation on the PEI have been considered during the EIA process. Further information is provided in the **Consultation Report** (document reference 5.1) and within **Chapters 5 – 18** of this ES.

1.6. ENVIRONMENTAL STATEMENT

1.6.1. EIA is the process through which the environmental consequences of the Proposed Scheme which are considered likely to be significant are identified along with any mitigation measures required. The results of the EIA for the Proposed Scheme are presented in this ES, which has been produced such that the SoS can consider the environmental effects of the Proposed Scheme when deciding whether or not to grant the DCO.

1.6.2. This ES is also intended to enable other interested parties who have a role, or wish to participate in the statutory decision-making process, to understand the nature of the Proposed Scheme.

1.6.3. The ES identifies likely significant residual effects. Residual effects are the effects a proposed development is likely to have after mitigation measures are implemented.

1.6.4. The ES assesses the potential cumulative effects of the Proposed Scheme in combination with other relevant, known, proposed or consented schemes, as well as the combined effects resulting from the interrelationship of the various environmental effects caused by the Proposed Scheme (where the cumulation of these effects results either in a new significant effect or increases the significance of an effect already identified).

1.6.5. The ES has been produced in accordance with Regulation 14 of the EIA Regulations 2017, including all necessary information in order to satisfy Regulation 14(2)(a)-(f) and Schedule 4, which state what environmental information must be included in an ES. A summary of the information required and its location within this ES is given in **Table 1.1** below.

Table 1.1 - Information provided in the ES

Location in EIA Regulations 2017	Requirement	Location in ES
Reg 14(2) (a) and Schedule 4 (1)	A description of the proposed development comprising information on the site, design, size and other relevant features of the development. A description of the development, including in particular— -a description of the location of the development; -a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases; -a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; -an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.	**Chapter 2 (Site and Project Description)** and **Chapters 5 – 17** (document reference 6.1.5 – 6.1.17)
Reg 14(2) (b) Schedule 4(4) Schedule 4(6)	A description of the likely significant effects of the proposed development on the environment. A description of the factors specified in regulation 5(2) likely to be	**Chapters 5 - 17**

Location in EIA Regulations 2017	Requirement	Location in ES
	significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	
Schedule 4(3)	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge	**Chapters 5 - 17**
Reg 14(2) (c) **Schedule 4(7)**	A description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely	**Chapters 5 - 17**

Location in EIA Regulations 2017	Requirement	Location in ES
	significant adverse effects on the environment. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	
Reg 14(2) (d) **Schedule 4(2)**	A description of the reasonable alternatives studied by the Applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	**Chapter 3 (Consideration of Alternatives)** (document reference 6.1.3)

Location in EIA Regulations 2017	Requirement	Location in ES
Reg 14(2) (e) **Schedule 4(9)**	A non-technical summary of the information referred to in Regulation 14(2) sub-paragraphs (a) to (d). A non-technical summary of the information provided under Schedule 4, paragraphs 1 to 8.	**ES NTS** (Volume 4)
Schedule (4)(10)	A reference list detailing the sources used for the descriptions and assessments included in the Environmental Statement.	**Chapters 1 - 18**
Reg 14(2) (f)	Any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.	**Chapters 5 - 17**
Schedule 4 (5)(a)	A description of the likely significant effects of the development resulting from - The construction and existence of the development, including, where relevant, demolition works.	**Chapters 5 - 17**
Schedule 4 (5)(b)	A description of the likely significant effects of the development resulting from - The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources.	**Chapter 8 (Ecology)** **Chapter 11 (Ground Conditions)** **Chapter 12 (Water Environment)** **Chapter 13 (Materials and Waste)**
Schedule 4 (5)(c)	A description of the likely significant effects of the development resulting from -	**Chapter 6 (Air Quality)** **Chapter 7 (Noise and Vibration)** **Chapter 8 (Ecology)**

Location in EIA Regulations 2017	Requirement	Location in ES
	The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;	**Chapter 9 (Landscape and Visual Amenity)** **Chapter 13 (Materials and Waste)** **Chapter 15 (Greenhouse Gases)** **Chapter 16 (Population, Health and Socioeconomics)**
Schedule 4 (5) (d) **Schedule 4 (8)**	A description of the likely significant effects of the development resulting from - The risks to human health, cultural heritage or the environment (for example due to accidents or disasters). A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and / or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council (3) or Council Directive 2009/71/Euratom (4) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the	**Chapter 2 (Site and Project Description)** **Chapter 6 (Air Quality)** **Chapter 7 (Noise and Vibration)** **Chapter 10 (Heritage)** **Chapter 11 (Ground Conditions)** **Chapter 15 (Greenhouse Gases)** **Chapter 16 (Population, Health and Socioeconomics)** **Chapter 17 (Major Accidents and Disasters)**

Location in EIA Regulations 2017	Requirement	Location in ES
	environment and details of the preparedness for and proposed response to such emergencies.	
Schedule 4 (5)(e)	A description of the likely significant effects of the development resulting from - 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;	**Chapter 18 (Cumulative Effects)** (document reference 6.1.18)
Schedule 4 (5)(f)	A description of the likely significant effects of the development resulting from - -The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;	**Chapter 14 (Climate Change Resilience)** **Chapter 15 (Greenhouse Gases)**
Schedule 4 (5)(g)	A description of the likely significant effects of the development resulting from - The technologies and the substances used.	**Chapters 5 - 17**

1.6.6. Confirmation that the ES also satisfies Regulation 14(3) and 14(4) is set out in **Table 1.2** below.

Table 1.2 – Confirmation that the ES has been prepared in line with Regulation 14(3) and 14(4)

Location in EIA Regulations 2017	Requirement	Response
Reg 14(3) (a)	Where a scoping opinion has been adopted, be based on the	The ES has taken account of the **Scoping**

	most recent scoping opinion adopted (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion).	**Opinion** adopted by the SoS on 26 February 2021 (**Appendix 1.2** (document reference 6.3.1.2) and an explanation of how each point has been addressed is set out in **Appendix 4.2 (Scoping Opinion Responses)**.
Reg 14(3) (b)	Include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment.	The conclusions of the ES and the methodologies for forming these, as well as any information required to do so, are provided in the topic chapters **(Chapters 5 – 18)** of the ES and their associated figures (Volume 2) and appendices (Volume 3).
Reg 14(3) (c)	Be prepared, taking into account the results of any relevant UK environmental assessment, which is reasonably available to the applicant with a view to avoiding duplication of assessment.	The ES has taken account of any relevant UK environmental assessment available at the time of writing and this is set out in the topic chapters **(Chapters 5 – 18)** of the ES.
Reg 14(4) (a)	The applicant must ensure that the environmental statement is prepared by competent experts.	The ES has been prepared by technical specialists, as relevant for each of the topic chapters.
Reg 14(4) (b)	The environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts.	A statement setting out the relevant expertise of the ES authors is provided in **Appendix 4.1 (Relevant Expertise and**

		Competency) (document reference 6.3.4.1)

1.7. CONSULTATION

1.7.1. Under Section 42 (Duty to Consult), Section 47 (Duty to consult local community) and Section 48 (Duty to publicise) of the Planning Act 2008, and Regulation 13 of the EIA Regulations 2017, there is a duty placed on the Applicant to consult relevant and prescribed organisations, local authorities, interested parties, local communities and any person notified to the Applicant by the SoS in accordance with regulation 11(1)(c) of the EIA Regulations 2017.

1.7.2. A **Consultation Report** (document reference 5.1) has been prepared to accompany the DCO Application which discusses the consultation process and how the statutory requirements referred to in the previous paragraph have been satisfied, detailing how all comments received have been considered, and how comments may have shaped and influenced the proposals for the Proposed Scheme to accompany the DCO Application.

REFERENCES

Department of Energy and Climate Change. (2011). *National Policy Statement for Renewable Energy Infrastructure (EN-3).*

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