

The Drax Power (Generating Stations) Order

Land at, and in the vicinity of, Drax Power Station, near Selby, North Yorkshire

Landscape and Visual Amenity Effects – Appropriateness of Proposed Mitigation

(Submitted for Deadline 2)



The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
Regulations 2009 - Regulation 5(2)(q)

Drax Power Limited

Drax Repower Project

Applicant: DRAX POWER LIMITED
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Glossary

Term	Definition
Above Ground Installation (AGI)	<p>The Minimum Offtake Connection (MOC) which will be operated by National Grid Gas and the PIG Trap Launching station (PTF-L) which will be operated by Drax.</p> <p>The AGI is described as Work No. 6 in Schedule 1 of the draft DCO (Examination Library Reference AS-012).</p>
Additional Areas	Additional areas are compensation areas which fall outside the Site Boundary but under Drax ownership identified to compensate and offset landscape / habitats lost as a result of construction, site clearance and/or the construction and retention of permanent infrastructure associated with the Proposed Scheme.
Application	The DCO Application.
The Applicant	Drax Power Ltd.
Combined Cycle Gas Turbine	<p>A combined cycle gas turbine is an assembly of turbines that convert heat into mechanical energy.</p> <p>Combustion of a fuel within a gas turbine produces hot gases that expand over a complex series of blades that cause the turbine to rotate which in turn drives an electrical generator. The principle of combined cycle is that the exhaust gases from the turbine are used as a heat source in a heat recovery steam generator (HRSG), increasing the system's overall efficiency by utilising energy from the fuel that would otherwise be wasted.</p>
Compensation Areas	Parcels of land on and/or off the Power Station Site within the confines of the Site Boundary and outside the Site Boundary but under Drax ownership identified to compensate and offset landscape / habitats lost as a result of construction, site clearance and/or the construction and retention of permanent infrastructure.
Direct Effect	An effect that is directly attributable to the Proposed Scheme.
Development Parcels	Development areas A to K identified on Figure 1-3 in Chapter 1 of the Environmental Statement (Examination Library Reference APP-069).
Effect	The consequence of an impact on the environment.
Enhancement	Proposals that seek to improve the landscape resource and the visual amenity of the Proposed Scheme and its wider setting, over and above its baseline condition.
Environmental Statement	A statement that includes the information that is reasonably required to assess the environmental effects of a development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but that

Term	Definition
	includes at least the information required in the EIA Regulations 2017 and which is prepared in accordance with the latest Scoping Opinion adopted by the Secretary of State (where relevant).
Existing Drax Power Station Complex	The facilities comprising the existing Drax Power Station, and the land upon which it is situated.
Examining Authority (ExA)	A panel or single person appointed from the Planning Inspectorate to be responsible for conducting the examination of, and recommendation to the SoS as to a decision on, the DCO Application.
Feature	Particularly prominent or eye-catching elements in the landscape, such as tree clumps, church towers or wooded skylines OR a particular aspect of the Proposed Scheme.
Gas Pipeline	<p>The approximately 3 km underground pipeline which connects the Gas Receiving Facility to the National Transmission System.</p> <p>The Gas Pipeline is described as Work No. 7 in Schedule 1 of the draft DCO (Examination Library Reference AS-012).</p>
Gas Receiving Facility (GRF)	This is required to receive the natural gas from the Gas Pipeline. The GRF is described as Work No. 5 in Schedule 1 of the draft DCO (Examination Library Reference AS-012).
Gas turbine	<p>Gas turbines produce electricity. Air is drawn into the compressor of the gas turbine and is compressed. The fuel is then injected into the combustion chamber. The mixture of fuel and compressed air is ignited, producing gases at high temperatures. As the gas expands, it rotates the turbine to produce electricity.</p> <p>The gas turbines form part of Work No. 1A (which includes up to two gas turbines in connection with Unit X) and Work No. 2A (which includes up to two gas turbines in connection with Unit Y) in Schedule 1 of the draft DCO (Examination Library Reference AS-012).</p>
Heat Recovering Steam Generators	HRSGs recover the hot flue gases from the Gas Turbines. The heat is used to produce steam that will drive the existing steam turbines. HRSGs are required where the generating station is operating in CCGT mode.
Impact	A physical or measurable change to the environment attributable to the Proposed Scheme.
Locally Important Landscape Area	A local landscape designation defined by East Riding of Yorkshire Council.
Land use	What land is used for, based on broad categories of functional land cover, such as urban and infrastructure use and the different types of agricultural and forestry.
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.

Term	Definition
Landscape and Visual Impact Assessment	A tool used to identify and assess the likely significant effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another.
Landscape Character Assessment	The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make a landscape distinctive. The process results in the production of a Landscape Character Assessment.
Landscape Character Areas	These are single unique areas which are the discrete geographical areas of a particular landscape type.
Landscape Character Types	These are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement patterns, and perceptual and aesthetic attributes.
Landscape Effects	Effects on the landscape as a resource in its own right.
Landscape Receptors	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Likely significant effect	An effect is the consequence of an impact or change to the environment. Effects do not have quantifiable values (e.g. opening up of new views as a result of loss of trees/hedgerows), but have significance (e.g. major, moderate or minor). Those effects predicted to have a significance of moderate to major are classified as likely significant effects.
Mitigation Measures	Actions proposed to avoid, reduce and where possible offset likely significant adverse effects arising from the whole or specific elements of a development.
National Policy Statements (NPS)	Overarching policy designated under the Planning Act 2008 concerning the planning and consenting of NSIPs in the UK.
Nationally Significant Infrastructure Project (NSIP)	A project meeting the criteria for a "nationally significant infrastructure project" set out in section 14 of the Planning Act 2008, and therefore requiring authorisation under the PA 2008 by way of a DCO. The Proposed Scheme constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of s.14(1)(a) and s.15 of the PA 2008 as it is an onshore generating station in England of 50 MW capacity or more.
Open Cycle Gas Turbine	An open cycle gas turbine converts heat into mechanical energy. Combustion of a fuel within a gas turbine produces hot gases that expand over a complex series of blades that cause the turbine to rotate which in turn drives an electrical generator.

Term	Definition
Pipeline Area	The area required in connection with the construction, operation and maintenance of the Gas Pipeline, the AGI and the GRF, comprising the Pipeline Construction Area and the Pipeline Operational Area.
Pipeline Construction Area	The extent of land needed for the construction phase of the Gas Pipeline, the AGI, the GRF and the Rusholme Lane Area.
Proposed Scheme	<p>Drax Power Limited is proposing to repower up to two existing coal-powered generating units (Units 5 and 6) at the Existing Drax Power Station Complex with new gas turbines that can operate in both combined cycle and open cycle modes. The term "repower" is used as existing infrastructure, such as the steam turbine and cooling towers, that are currently used for the coal fired units would be reutilised for the new gas fired generating units/stations.</p> <p>The repowered units (which each constitute a new gas fired generating station) would have a new combined capacity of up to 3,600 MW in combined cycle mode (1,800 MW each), replacing existing units with a combined capacity to generate up to 1,320 MW (660 MW each). This is explained further below:</p> <p>Each gas generating station would have up to two gas turbines, with each gas turbine powering a dedicated generator of up to 600 MW in capacity. The gas turbines in each generating station (or unit), therefore, would have a combined capacity of up to 1,200 MW. The gas turbines in each generating station (or unit), in combined cycle mode, would provide steam to the existing steam turbine (through Heat Recovery Steam Generators (HRSGs)) which would generate up to 600 MW per unit. Each unit would have up to two HRSGs. This results in a capacity for each generating station of up to 1,800 MW and, should both units be repowered, a combined capacity of up to 3,600 MW. The new gas turbine generating units have been designated the terms "Unit X" and "Unit Y". In OCGT mode, the combined capacity would be up to 2,400MW (as in OCGT mode, there would be no HRSG capacity). Each unit would have (subject to technology and commercial considerations) a battery energy storage facility. The battery units may be stored within a single structure.</p> <p>The total combined capacity of the two gas fired generating stations and two battery storage facilities (i.e. the total combined capacity of the Proposed Scheme) is therefore 3,800 MW.</p> <p>Drax is seeking consent for the flexibility to either:</p> <ul style="list-style-type: none"> ○ Repower one unit (either Unit 5 or 6) and construct Unit X as a gas fired generating station; or ○ Repower both Units 5 and 6 and construct Unit X and Unit Y as two gas fired generating stations. <p>In the single unit scenario, up to two gas turbines and up to two HRSGs and (subject to technology and commercial considerations) a battery energy storage facility would be constructed. The maximum size of the battery storage cells and any structure built to protect them would not</p>

Term	Definition
	<p>change, as the battery storage cells for one Unit could be one larger battery which would allow the output associated with one Unit to be sustained for a longer duration. However, the fuel gas station and gas insulated switchgear would be smaller.</p> <p>In the event that two units are repowered and two new generating stations are constructed, then construction works would be undertaken consecutively rather than concurrently.</p> <p>In order to repower to gas, a new Gas Pipeline would be constructed from the Existing Drax Power Station Complex to the National Transmission System (NTS) operated by National Grid. Pipeline infrastructure would be the same for both one and two unit scenarios. A gas receiving facility (GRF) comprising Pipeline Inspection Gauge (PIG) Trap Facility (PTF), Pressure Reduction and Metering Station (PRMS) and compressor station is proposed south of woodland to the east of New Road.</p> <p>At the connection to the NTS there will be an AGI comprising - a Pig Trap Launching station (PTF-L) which will be operated by Drax, and a Minimum Offtake Connection (MOC), which will be operated by National Grid.</p> <p>The Proposed Scheme also includes the electrical connection.</p> <p>Drax's Proposed Scheme is described in more detail in Chapter 3 (Site and Project Description) of the ES Volume 1 (Examination Library Reference APP-071).</p> <p>Schedule 1 of the Order (Examination Library Reference AS-012) lists out the elements comprised within the Proposed Scheme.</p>
Repower	Decommissioning of existing coal-fired units and replacement with newly constructed gas-fired units utilising some of the existing infrastructure.
Residual Effects	Those effects of a development that cannot be mitigated following implementation of mitigation proposals.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Site	The Site refers to the Power Station Site, the Carbon capture readiness reserve space (which is also the location of temporary construction laydown described as Work No. 9B in Schedule 1 to the draft DCO submitted with the DCO Application) and the Pipeline Area.
Site Boundary	The Site Boundary refers to the outer perimeter of the Site.
Site Reconfiguration Works/Stage 0	The Site Reconfiguration Works or Stage 0 refers to the works described below that are required to prepare the Power Station Site for the construction of the generating station equipment and the electrical connection. The works comprise:

Term	Definition
	<ol style="list-style-type: none"> 1. Demolition of the private squash court (no replacement), Learning Centre (consolidated into existing facilities); and 2. Demolition of and reconstruction of car parking, turbine outage stores, contractor's compounds and welfare facilities. 3. Construction of a cooling water spray screen between relocated facilities and the southern cooling towers. <p>The Site Reconfiguration Works were the subject of a separate planning application under the Town and Country Planning Act 1990 (planning reference 2018/0154/FULM) which was approved by Selby District Council on 24 May 2018. The Applicant has started to carry out the Site Reconfiguration Works by implementing planning permission 2018/0154/FULM. At the time of submitting this document, the Applicant has submitted a non-material amendment application to the Examining Authority to remove these works from the Proposed Scheme being authorised under the DCO. The DCO Application makes it clear that these works may be carried out under either:</p> <ol style="list-style-type: none"> 1. Any TCPA planning permission that may be granted; or 2. The DCO.
Stage 1	<p>This stage assumes that the Site Reconfiguration Works have been completed (under a separate planning application under the Town and Country Planning Act 1990 (planning reference 2018/0154/FULM) which was approved by Selby District Council on 24 May 2018). This stage refers to the construction of Unit X, along with the construction of the Gas Pipeline, the GRF, the AGI, the battery storage facility for Unit X, and any structure that is built to protect the battery storage (for both Units X and Y).</p> <p>During this stage one coal unit (either 5 or 6) continues to operate while Unit X is being constructed.</p>
Stage 2	<p>This stage refers to the operation and maintenance of Unit X, the Gas Pipeline, the GRF, the AGI and the battery storage facility and the construction of Unit Y (including the installation of storage capability within any structure to protect the battery storage constructed under Stage 1).</p> <p>The construction of Unit Y is assumed to take place 12 months after Unit X is complete, however this could be longer.</p> <p>If Unit Y is not built then this Stage 2 is a worst-case assessment of the operation of Unit X.</p> <p>The construction laydown areas associated with the construction of the Gas Pipeline, GRF and AGIs will be reinstated during this stage.</p>

Term	Definition
Stage 3	<p>This stage refers to the operation and maintenance of Unit X, Unit Y, the Gas Pipeline, the AGI, the GRF and the battery storage facility.</p> <p>The remaining construction laydown/parking areas (associated with the construction of Units X and Y) will be reinstated after Unit Y is built.</p>
Unit X	The construction of a gas fired generating station capable of operating in CCGT and OCGT modes and which would have a generating capacity of up to 1,800 MW. Unit X would be connected to a battery storage facility. Unit X is described in Work No. 1 of Schedule 1 to the draft DCO (Examination Library Reference AS-012).
Unit Y	The construction of a gas fired generating station capable of operating in CCGT and OCGT modes and which would have a generating capacity of up to 1,800 MW. Unit Y would be connected to a battery storage facility. Unit Y is described in Work No. 2 of Schedule 1 to the draft DCO (Examination Library Reference AS-012).
Visual Amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through the area.
Visual Effects	Effects on specific views and on the general visual amenity experienced by people.
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.

Abbreviations

Abbreviation	Term in full
AA	Additional Area
AGI	Above Ground Installation
BEIS	Department for Business, Energy and Industrial Strategy
BMV	Best and Most Versatile
C.E.G.B	Central Electricity Generation Board
CCGT	Combined Cycle Gas Turbine
CO ₂	Carbon Dioxide
DCO	Development Consent Order
DECC	Department for Business, Energy and Climate Change
ES	Environmental Statement
LCA	Landscape Character Areas
LCT	Landscape Character Types
EN-1	Overarching NPS for Energy
EN-2	NPS for Fossil Fuel Electricity Generating Infrastructure
EN-4	NPS for Gas Supply Infrastructure and Gas Oil Pipelines
EN-5	NPS for Electricity Networks Infrastructure
ES	Environmental Statement
GRF	Gas Receiving Facility
HRSGs	Heat Recovery Steam Generators
ILA	Locally Important Landscape Area
Km	Kilometre
kv	Kilovolt
m	Metres
m ²	Metres squared
MW	Megawatts
NPS	National Policy Statement
NSIP	National Significant Infrastructure Project
NTS	National Gas Transmission System
NYCC	North Yorkshire County Council
OCGT	Open Cycle Gas Turbine
PA 2008	Planning Act 2008
PRoW	Public Right of Way

Abbreviation	Term in full
SDC	Selby District Council
SoS	Secretary of State

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EXECUTIVE SUMMARY

This paper has been prepared by the Applicant (Drax Power Limited) as a result of ongoing discussions with North Yorkshire County Council's (NYCC) Principal Landscape Architect on the sufficiency of mitigation in respect of landscape and visual effects identified in the Environmental Statement for the Proposed Scheme.

This paper has been submitted for Deadline 2 of the Examination alongside the revised Outline Landscape and Biodiversity Strategy (Applicant's document reference 6.7 (Rev. 002)).

This paper demonstrates how the Applicant has addressed the test in National Policy Statement (NPS) for Fossil Fuel Electricity Generating Infrastructure (EN-2) paragraph 2.6.5, which states that:

"[i]t is not possible to eliminate the visual impacts associated with a fossil fuel generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable."

This paper determines that in terms of addressing significant landscape and visual effects, the effects are minimised as far as reasonably practicable (in accordance with National Policy Statement EN-1 and paragraphs 2.6.5 and 2.6.8 of National Policy Statement EN-2). Siting, operational and other relevant limitations have constrained the mitigation measures proposed. Such constraints include:

- The siting of the Proposed Scheme on the Existing Drax Power Station Complex rather than at a green field location and objectives relating to the re-utilisation of existing infrastructure, re-using as much existing operational land as possible, and maximising the efficiency of the Existing Drax Power Station Complex.
- The positioning of Unit X and Unit Y close to the existing steam turbines to reuse existing infrastructure, maximise existing infrastructure and enable ongoing operations of Drax's coal units until such time as they are decommissioned.
- Gas turbine selection was based on achieving higher efficiency electricity production and lower emissions of CO₂ per MW. The Proposed Scheme uses vertical Heat Recovery Steam Generators (HRSGs) which are beneficial as they are compact and have a much smaller footprint compared to horizontal HRSGs allowing the plant layout to be optimised. Proximity to the steam turbines maximises efficiency by generating shorter steam pipe runs.
- Stack heights associated with Unit X and Unit Y in response to reducing air quality impacts.
- The extent of Best and Most Versatile agricultural land (Grade 1 and 2) in the immediate vicinity of the Existing Drax Power Station Complex.

The paper concludes that the benefits of providing further mitigation would be disproportionately low (the significance of effect would not change) compared to the disbenefits (primarily land take of Best and Most Versatile agricultural land) associated with such further mitigation. Accordingly, the Applicant considers that it has taken the necessary measures to minimise the effects of the Proposed Scheme on landscape and visual amenity as far as reasonably practicable as required by paragraphs, 2.6.5 and 2.6.8 of EN-2.

1 INTRODUCTION

1.1 Purpose of this Document

- 1.1.1 On 29 May 2018 Drax Power Limited (“Drax” or “the Applicant”) submitted an application (“the Application”) for a Development Consent Order to the Secretary of State for Business, Energy and Industrial Strategy (“the SoS”). The Application relates to the Drax Repower Project (“the Proposed Scheme”) which is described in chapter 3 of the Environmental Statement (Examination Library Reference [APP-071](#)).
- 1.1.2 The Application was accepted for Examination on 26 June 2018.
- 1.1.3 This paper has been prepared by the Applicant as a result of ongoing discussions with the North Yorkshire County Council (“NYCC”) Principal Landscape Architect on the sufficiency of mitigation in respect of the landscape and visual effects identified in the Environmental Statement for the Proposed Scheme.
- 1.1.4 This paper has been submitted for Deadline 2 of the Examination.
- 1.1.5 This paper demonstrates how the Applicant has addressed the test in National Policy Statement (“NPS”) for Fossil Fuel Electricity Generating Infrastructure (EN-2) paragraph 2.6.5, which states that:
- “[i]t is not possible to eliminate the visual impacts associated with a fossil fuel generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable.”*
- 1.1.6 In accordance with the Overarching NPS for Energy (EN-1) and NPS for Fossil Fuel Generating Infrastructure (EN-2), Chapter 10 (Landscape and Visual Amenity) of the Environmental Statement (“ES”) (Examination Library Reference [APP-078](#)) provides an assessment of the impacts of the Proposed Scheme in terms of effects on landscape and visual amenity. The assessment identifies likely significant effects during construction and operation on landscape character and the visual amenity of surrounding visual receptors.
- 1.1.7 An Outline Landscape and Biodiversity Strategy (Examination Library Reference [APP-135](#)) was prepared to support Chapters 9 (Biodiversity) and 10 (Landscape and Visual Impact Assessment) of the Environment Statement (Examination Library Reference [APP-077](#) and [APP-078](#) respectively) and submitted as part of the Application. Following ongoing discussions with NYCC’s Principal Landscape Architect and Principal Ecologist, the detail of which is set out in Section 4, a revised Outline Landscape and Biodiversity Strategy has been submitted for Deadline 2 of the Examination (Applicant’s document reference 6.7 (Rev. 002)).
- 1.1.8 The purpose of this paper is to demonstrate that the landscape measures proposed are proportionate and sufficient to minimise the visual effects on Landscape Character Areas / Types and the Lower Derwent Locally Important Landscape Area (“ILA”) to the extent reasonably practicable given the scale and nature of the Proposed Scheme and its visual context. Part of that justification includes outlining why the benefits of providing further mitigation are outweighed by the disbenefits of doing so, and are therefore neither reasonably practicable nor feasible.

- 1.1.9 Section 2 of this paper sets out the Applicant's objectives for the Proposed Scheme, the need for it, and compliance with paragraph 2.6.5 of NPS EN-2. Section 3 provides a short summary of the nature and extent of visual effects of the Proposed Scheme, Section 4 a summary of consultations with NYCC's Principal Landscape Architect and Section 5 summarises the proposed landscape and visual mitigation measures. Section 6 outlines the mitigation constraints and identifies potential mitigation in response to comments received from NYCC and the reasons why these are not practicable.
- 1.1.10 It should be noted that this paper does not refer to mitigation measures associated with "Stage 0" (the Site Reconfiguration Works) as this stage of works has been consented by Selby District Council ("SDC") as part of a separate planning application (application reference 2018/0154/FULM) under the Town and Country Planning Act 1990 (as amended). The planning permission has since been lawfully implemented. Planning condition 5 attached to that consent required landscaping details to be submitted to and approved by SDC prior to the first building being brought in to use, and the Local Planning Authority's decision to discharge this condition is currently pending (application reference 2018/0973/DOC). All planting, seeding or turfing comprised in the approved details of landscaping (planning condition 5) is required by planning condition 6 to be carried out within six months of the first occupation of the first building. The landscaping details submitted to SDC for approval align with the landscaping requirements for "Stage 0" previously set out within the Outline Landscape and Biodiversity Strategy, and as a result the removal of Stage 0 from the DCO Application has no bearing on the mitigation to be secured in accordance with the strategy, for the subsequent stages of the Proposed Scheme.

1.2 The Proposed Scheme

- 1.2.1 Drax is proposing to repower up to two existing coal-fired units (known as Unit 5 and Unit 6) with gas – this means the existing coal-fired units would be decommissioned and replaced with newly constructed gas-fired units utilising some of the existing infrastructure. Each unit, which is a new gas fired generating station in its own right, would comprise combined cycle gas turbine ("CCGT") and open cycle gas turbine ("OCGT") technology. Each new gas generating unit would also use existing infrastructure, including the cooling system and steam turbines, and would each have a capacity of up to 1,800 MW, replacing existing units each with a capacity of up to 660 MW. Each unit would have a battery storage capability (subject to technology and commercial considerations). Should both units be repowered, the new gas-fired units / generating stations would have a total combined capacity of up to 3,800 MW.
- 1.2.2 Drax is seeking consent for the flexibility to construct a single generating station with an 1,800 MW generating capacity or to construct two generating stations each with a 1,800 MW generating capacity. The construction of each new gas fired generating station would repower either one or both of Unit 5 and Unit 6. The decision as to whether Drax constructs one or two gas fired generating stations and when, is a commercial decision that can only be taken post any consent being granted.

- 1.2.3 In order to repower to gas, a new Gas Pipeline needs to be constructed from Drax Power Station to the National Gas Transmission System ("NTS"). In addition, an Above Ground Installation ("AGI"), and Gas Receiving Facility ("GRF") are required. A connection to the electrical network would be made via the existing National Grid Substation within the Existing Drax Power Station Complex. Other development includes construction laydown areas, a passing place to enable the construction of the Gas Pipeline and a temporary footbridge during construction.
- 1.2.4 The development being applied for is called the "Proposed Scheme" and is more fully described in Schedule 1 of the draft Development Consent Order (where it is termed the "Authorised Development") (Examination Library Reference [AS-012](#)).
- 1.2.5 The Proposed Scheme includes the construction of a generating station with a capacity of more than 50 MW and accordingly meets the criteria given in the Planning Act 2008 (as amended) ("PA 2008") for being a Nationally Significant Infrastructure Project ("NSIP").
- 1.2.6 As a NSIP, the Proposed Scheme therefore requires a Development Consent Order ("DCO") from the SoS for Business, Energy and Industrial Strategy.

2 NEED AND PLANNING POLICY COMPLIANCE

- 2.1.1 The Applicant's objectives for the Proposed Scheme, as set out in Section 3 of the Planning Statement (Examination Library Reference [APP-062](#)), are to:
- Reduce the reliance of Drax Power Station on coal as a source of power for electricity generation and replace that source with one that meets the Government's aims of creating a diverse energy mix that maintains security of supply as well as providing flexible back up for intermittent renewable energy;
 - Ensure that Drax Power Station maintains its position as one of the UK's main power generators, playing an important role in helping the UK transition to a low carbon economy through the re-utilisation of as much existing infrastructure as possible (such as cooling systems, cooling towers and steam turbines) which would otherwise be potentially redundant despite the infrastructure remaining within its operating life and capable of contributing to more efficient energy production and a lower carbon footprint (given it is already constructed);
 - Utilise as much existing operational land within the Existing Drax Power Station Complex as possible to maximise the use and efficiency of existing infrastructure.
 - Maximise the efficiency of Drax Power Station; and
 - Increase the flexible, response generating capacity of Drax Power Station to meet increasing demand across the UK.

- 2.1.2 These objectives are consistent with the need for new energy infrastructure and gas generation plants as identified by the relevant energy NPSs, and provide the context within which decisions in relation to the location, layout and design of the Proposed Scheme have been taken.
- 2.1.3 NPSs include the Government's objectives for the development of nationally significant infrastructure. The relevant NPSs for the Proposed Scheme were produced by the Department for Business, Energy and Climate Change ("DECC"), now the Department for Business, Energy and Industrial Strategy ("BEIS") and received designation by the then Secretary of State for Energy and Climate Change on 19 July 2011. These include the following:
- **Overarching NPS for Energy (EN-1):** This NPS 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 under the Planning Act 2008 (as amended) (the PA 2008) and set out the need for new energy infrastructure including nationally significant gas infrastructure.
 - **NPS for Fossil Fuel Generating Infrastructure (EN-2):** This NPS sets out policies specific to the determination of applications for fossil fuel electricity generating stations of over 50 MW generating capacity.
 - **NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4):** This NPS provides the basis for decisions on applications for gas supply infrastructure and gas and oil pipelines. The proposed Gas Pipeline in itself does not meet the thresholds in Section 20 of the PA 2008 to qualify as an NSIP in its own right. However, in England, gas transporter pipelines which are not NSIPs may be granted development consent as associated development by virtue of their connection with another NSIP, such as the construction or extension of a generating station. Therefore, EN-4 is a material consideration in determining the acceptability of the Gas Pipeline, the GRF and AGI.
 - **NPS for Electricity Networks Infrastructure (EN-5):** This NPS covers above ground electricity lines with a voltage of 132 kV or above, and it also applies in England to any kind of electricity infrastructure if it constitutes associated development for which consent is sought along with an NSIP such as a generating station. The electricity infrastructure that forms part of the Proposed Scheme, which is classified as associated development is subject to policies set out in EN-5.
- 2.1.4 Compliance of the Proposed Scheme with the applicable policies within the relevant NPSs is assessed along with local planning policy considerations, and is set out in Sections 5 and 6 and Appendix 2 to the Planning Statement (Examination Library Reference [APP-062](#)).
- 2.1.5 For the purposes of this paper, relevant extracts from NPS EN-2 (paragraphs 2.6.4 to 2.6.10) are stated below:

"2.6.4 The applicant should also consider the design of the plant, including the materials to be used, and the visual impact of the stack, as set out in Section 5.9 of EN-1 in the context of the local landscape."

[Secretary of State] decision making

2.6.5 It is not possible to eliminate the visual impacts associated with a fossil fuel generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable.

2.6.6 Applicants should design fossil fuel generating stations with the aim of providing the best fit with the existing local landscape so as to reduce visual impacts. This may include design of buildings to minimise negative aspects of their appearance through decisions in areas such as size, external finish and colour of the plant as far as compliance with engineering and environmental requirements permit. The precise architectural treatment will need to be site-specific.

2.6.7 Reduction of visual impacts may often involve enclosing buildings at low level as seen from surrounding external viewpoints. This makes the scale of the plant less apparent, and helps conceal the lower level, smaller scale features of the plant. Earth bunds and mounds, tree planting, or both may be used for softening the visual intrusion and may also help to attenuate noise from site activities. Where the existing landscape is more industrial, design may involve other forms of visual impact mitigation.

2.6.8 As stated in EN-1, the applicant should have undertaken an appropriate landscape and visual assessment using recognised methodologies and have taken measures to minimise the effects of the fossil fuel generating station on landscape and visual amenity as far as reasonably practicable. In considering whether the measures proposed are sufficient to achieve these objectives the [Secretary of State] should take advice from the relevant statutory consultees.

2.6.9 In requiring any design adjustments to minimise adverse effects, the [Secretary of State] needs to be aware of the statutory and technical requirements that inform plant design and may require the incorporation of certain design details for example chimney stack height, as set out in Section 5.9 of EN-1.

2.6.10 For the reason given in paragraph 2.6.5 above if, having regard to the considerations in respect of other impacts set out in EN-1 and this NPS, the [Secretary of State] is satisfied that the location is appropriate for the project, and that it has been designed sensitively (given the various siting, operational and other relevant constraints) to minimise harm to landscape and visual amenity, the visibility of a fossil fuel generating station should be given limited weight.”

- 2.1.6 It is noted that the NPSs acknowledge that main structures for fossil fuel generating stations are large and will have an impact on the surrounding landscape and visual amenity, and that *“it is not possible to eliminate the visual impacts associated with a fossil fuel generating station”* (EN-2, paragraph 2.6.5). The NPSs do not set an expectation that development proposals will be concealed from views. Accordingly, the priority in design terms is to reduce, rather than prevent, adverse landscape and visual impacts where possible.

3 NATURE AND EXTENT OF LANDSCAPE AND VISUAL EFFECTS

- 3.1.1 The Existing Drax Power Station Complex consists of large industrial buildings edged by areas of offsite woodland plantation particularly to the north and northwest. Views of the Existing Drax Power Station Complex are extensive and span beyond 30 km. The largest structures noticeable on the skyline include the chimney, northern and southern cooling towers, and the boiler and absorber house which form a large rectangular mass between the cooling towers. Within more immediate local views, and at a lower elevation, the switchgear adjacent to New Road is also noticeable. Plumes from the cooling towers are a temporary, but notable, feature on the skyline.
- 3.1.2 Visibility of the Existing Drax Power Station Complex within the study area (fixed at a 10 km radius in agreement with the Local Planning Authorities) (paragraph 10.4.44 of the Landscape and Visual Amenity Chapter, Examination Library Document [APP-078](#)) is widespread as a result of the open nature of the landscape – a flat landform with limited intervening vegetation and built form. The extent of views available to receptors range from those in close proximity (local views) to long distance views. A number of receptors are located within villages and along roads that are located in relative close proximity to the Site. Views of the Proposed Scheme tend to be from the edges of settlements or along roads and routeways where there is limited intervening vegetation or structures restricting views.
- 3.1.3 The Landscape and Visual Assessment presented in Chapter 10 (Landscape and Visual Amenity) of the ES states that

“Impacts on specific Landscape Character Areas and Types, ILA and visual amenity are associated within the presence of the Proposed Scheme and particularly Units X and Y and their associated stacks. The Proposed Scheme would contrast with the overall scale and mass of the Existing Power Station Complex which has a strong, symmetrical almost “iconic” presence. The proposed stacks’ slender, narrow and vertical in form differ to the larger, more coherent and considered structures associated with the existing cooling towers and turbine hall. Such structures would protrude above the horizontal lines created by the top of the cooling towers though subject to appropriate climatic conditions, plumes from the existing cooling towers may mask the tops of the proposed stacks from view. It is acknowledged that the permanent structures would visually “clutter” the top of the cooling towers, jarring and generating slightly discordant views from certain angles of view. The scale of the development would increase in terms of overall footprint and impact on local landscape character and associated features on and off site, the effects of which would reduce as planting matures”.

- 3.1.4 Such planting would be implemented in accordance with the Outline Landscape and Biodiversity Strategy, secured by a requirement in Schedule 2 to the draft DCO which requires the submission to, and approval by, the relevant Local Planning Authority, and implementation of such a strategy.
- 3.1.5 The full assessment presented in Chapter 10 (Landscape and Visual Amenity) of the ES has determined that there would be significant adverse effects of the Proposed Scheme during Stage 2 (Operation of Unit X and Construction of Unit Y) and Stage 3 (Operation of both Unit X and Unit Y) on Landscape Character Areas and Types. This includes LCT Levels Farmland, LCT 24 River Floodplains, LCT 4 River Corridors and in particular LCA 4A Derwent Valley, 4B River Ouse Corridor and 4D River Aire corridor. Equally there would be significant adverse effects on the Lower Derwent ILA, though given the linear nature of the local designation, the effects would be localised and diminish with distance. Adverse landscape effects are localised and associated with the aesthetic, experiential and perceptual qualities of the new units, stacks and associated structures against the Existing Drax Power Station Complex.
- 3.1.6 In terms of visual amenity, views would be experienced by receptors including residents, workers at Drax Power Station and workers at other premises, users of the Public Rights of Way (PRoW) network, National Trails, Cycle Routes and other recreational facilities as well as users of transport routes and of schools and places of worship.
- 3.1.7 Significant adverse visual effects would be experienced during Stage 1 (Construction of Unit X), Stage 2 (Operation of Unit X and Construction of Unit Y) and Stage 3 (Operation of both Unit X and Unit Y) of the Proposed Scheme.
- 3.1.8 Due to the position of the Proposed Scheme in relation to the Existing Drax Power Station Complex, significant visual effects experienced by receptors are localised and only occur within a 3 km radius of the Site; to the north east, east and south east. From these locations the stacks associated with Units X and Y would be a prominent feature in the view, grouped to the front of the existing chimney, turbine house and in between the cooling towers.
- 3.1.9 Beyond 3 km from the Site it is anticipated that the presence of the Proposed Scheme would result in varying effects on visual receptors subject to the relative orientation to the Existing Drax Power Station Complex. The Proposed Scheme would be barely perceptible when viewed against the western elevation of the Existing Drax Power Station Complex, whereas views beyond the eastern elevation would remain noticeable. The Proposed Scheme, however, would be “read” in the context of other large-scale industry and power generation developments located to the south west and south east, and which are varied in their height, mass and scale.
- 3.1.10 Significant adverse effects are particularly associated with users within 3 km of the Site including local residents, users of the Trans Pennine Trail and National Cycle Network (both of whom have a high sensitivity to change) as well as local road users within 1 km of the Site where the magnitude of change at specific stages of the Proposed Scheme is large.
- 3.1.11 Such effects would be experienced by receptors who would have a direct view of the Proposed Scheme. Effects for other receptors would be lower where views would be partial to oblique with some views filtered / obscured by the built form and intervening vegetation and based on their proximity and orientation to the Proposed Scheme.

- 3.1.12 It should be noted that the Proposed Scheme would change the form of the Existing Drax Power Station Complex but not its characteristics. Most receptors would experience a change in the form of the development they see (of the Existing Drax Power Station Complex) but it would continue to be a view of a development of an industrial nature. In some locations there would be a change in the composition of the view due to the introduction of further industrial elements associated with AGIs forming part of the Pipeline Area into a largely open, rural view.
- 3.1.13 From much of the surrounding area, due to a combination of the flat landscape and the size of the Proposed Scheme, structures are viewed against the skyline which increases their visibility. The screening and limiting of views of the Proposed Scheme is generally only possible where screening elements are located close to the receptor. Whilst more planting could be provided to mitigate some of the visual effects and effects associated with the aesthetic, perceptual and experiential qualities of landscape character, such mitigation is not considered proportionate, given it would require additional agricultural land and due to the height of the Proposed Scheme, the majority of receptors within a 3 km radius would still experience visual effect from the Proposed Scheme, especially in winter months. Furthermore, that effect would not change in significance.

4 CONSULTATION WITH NORTH YORKSHIRE COUNTY COUNCIL

- 4.1.1 An Outline Landscape and Biodiversity Strategy (Examination Library Reference [APP-135](#)) was prepared to support Chapters 9 (Biodiversity) and 10 (Landscape and Visual Impact Assessment) of the Environment Statement (Examination Library Reference [APP-077](#) and [APP-078](#) respectively) and submitted as part of the Application.
- 4.1.2 A revised Outline Landscape and Biodiversity Strategy has been prepared in response to initial comments received from NYCC's Principal Landscape Architect and Principal Ecologist on 12 June 2018 over the structure and content of the document including the need to ensure that mitigation was considered in the context of the wider environment.
- 4.1.3 Following these comments, further recommendations were suggested by NYCC's Principal Landscape Architect, namely that the Strategy should consider the objectives of the Leeds City Regional Infrastructure Strategy 2017 – 2036 and the Dales to Vales River Catchment Partnership, and how such objectives could be addressed through wide scale mitigation. These comments were then reiterated in a meeting on 12 July 2018 whereby NYCC's Principal Landscape Architect asked whether the Applicant could explore opportunities to "offset" mitigation. The Principal Landscape Officer suggested that such "offsets" should be linked as closely as possible to the local community affected through working with local partnerships and / or establishing new projects to improve visual amenity and / or enhance landscape features and such measures may contribute to improving Green Infrastructure, health and well-being.

- 4.1.4 As part of the meeting on 12 July 2018, NYCC's Principal Landscape Architect raised further queries over options to introduce additional mitigation measures within the Existing Drax Power Station Complex boundary. It was agreed that some internal design principles (now referred to as internal design objectives in the revised Outline Landscape and Biodiversity Strategy which has been submitted as part of Deadline 2) should be prepared. The objectives include overarching and site specific objectives reflecting some objectives within Weddle's landscape management report whilst others repeat objectives defined for the Compensation Areas.
- 4.1.5 A further meeting was held on 16 August 2018 whereby NYCC's Principal Landscape Architect reiterated that the mitigation should be proportionate to the significance of the landscape and visual effects and that the revised Strategy should demonstrate how the impacts have been "offset" through partnership proposals. The structure of the revised Strategy was also agreed at the meeting.
- 4.1.6 The revised Strategy, submitted for Deadline 2 alongside this paper (Applicant's document reference 6.7 (Rev. 002)), sets out the optioneering process which has informed the identification and consideration of a number of mitigation sites on land within the Existing Drax Power Station Complex boundary and land outside this boundary but within the Applicant's ownership. It includes an overarching Strategy Mitigation Plan which explains how measures to mitigate (where feasible) significant effects and deliver enhancements to existing vegetation have been identified, and outlines a set of internal design objectives for the detailed site design where the exact detailed site design has yet to be determined (namely in Development Parcels C, E, F and I of Figure 1.3 of Chapter 1 of the ES (Examination Library Reference [APP-069](#))). This will be secured through the discharge of requirement 7 in Schedule 2 of the draft DCO (Examination Library Reference [AS-012](#), a revised version of which has been submitted for this Deadline 2, Applicant's document reference 3.1) which requires the approval and implementation of the Landscape and Biodiversity Strategy.
- 4.1.7 Following the issue of the draft revised Strategy to NYCC, NYCC's Principal Landscape Architect reiterated at a meeting on 02 October 2018 that the Strategy in their opinion still did not consider wider opportunities for "offsetting" and compensating significant adverse landscape and visual effects. The Principal Landscape Architect also stated that such opportunities should be reflected within the Outline Landscape and Biodiversity Strategy and could be implemented through partnership working and achieving alternative benefits for the local community.
- 4.1.8 Whilst the Applicant is prepared to consider wider opportunities for "offsetting" and compensation through partnership working, the Applicant does not consider that the Outline Landscape and Biodiversity Strategy is the appropriate document to record such measures.

5 PROPOSED LANDSCAPE MITIGATION

- 5.1.1 The draft DCO contains a requirement to mitigate the visual and landscape effects of the Proposed Scheme by securing the submission of appropriate details and materials for Units X and Y. To discharge the relevant DCO requirement (requirement 6 in Schedule 2 of the draft DCO submitted at Deadline 2 (Applicant's document reference 3.1, now Rev 2)), details of the external appearance of Unit X and Unit Y, including colour, materials and surface finishes of all new permanent buildings and structures, require approval by the relevant Local Planning Authority prior to commencement of development. The proposed colours outlined in the Landscape and Visual Assessment have drawn on the original colour palette used in the original Drax Power Station design, paragraph 10.4.17 of Chapter 10 (Landscape and Visual Amenity) of the ES (Examination Library [APP-078](#)).
- 5.1.2 The Outline Landscape and Biodiversity Strategy (Examination Library Reference [APP-135](#)), a revised version of which has been submitted at Deadline 2 (Applicant's document reference 6.7, now Rev 002) introduces additional mitigation measures where feasible through a Strategy Mitigation Plan with supporting strategic objectives, targets and indicators.
- 5.1.3 The Strategy Mitigation Plan in the revised Outline Landscape and Biodiversity Strategy includes a number of areas proposed for mitigation, referred to as Compensation Areas A, B, C, F, H, J, K and Additional Areas 1, 2 and 3 (refer to Figure 6.7.3 in the Outline Landscape and Biodiversity Strategy). Compensation Areas fall within the Existing Drax Power Station Complex and Additional Areas lie outside the draft DCO Order Limits but within the Applicant's ownership.
- 5.1.4 Both the Compensation Areas and Additional Areas address the strategic objectives outlined in the Strategic Mitigation Plan and summarised below:
- Protect existing woodland, trees and hedgerows.
 - Improve the age structure of existing woodland.
 - Reinststate and enhance vegetation temporarily lost as a result of the Proposed Scheme.
 - Reduce visual clutter on site through low level screening.
 - Provide visual screening for some low level filtered views.
 - Visually screen additional development within Drax's footprint.
 - Create a diversity of habitats and support associated species.
 - Improve ecological and visual connectivity across the Site and beyond.
 - Soften and integrate the development within the surrounding landscape.
 - Create an attractive working environment within the confines of the station (covered by detailed mitigation plans) through high quality landscaping.
 - Use native and indigenous species of local provenance.
 - Introduce riparian vegetation to impede flood water.
 - Introduce floodplain woodland planting to impede flood water.

- 5.1.5 A set of targets and indicators have also been defined in the revised Outline Landscape and Biodiversity Strategy to measure the strategic objectives which relate to specific Compensation Areas and Additional Areas, as well as details of monitoring requirements and responsibilities. The Strategy Mitigation Plan allows some flexibility as planting matures to respond to unforeseen events such as disease, flooding, contamination and future planning applications as well as responding through on site monitoring to potential changes in habitats and species.
- 5.1.6 In response to NYCC's Principal Landscape Architect's request to explore further options to introduce mitigation measures within the Existing Drax Power Station Complex boundary, a set of internal design objectives were defined.
- 5.1.7 The internal design objectives will be secured through the detailed landscape design which will be set out in the detailed Landscape and Biodiversity Strategy(ies) and accompanying detailed mitigation plans pursuant to requirement 7 in Schedule 2 of the draft DCO (Examination Library Reference [AS-012](#), a revised version of which is submitted at Deadline 2 (Applicant's document reference 3.1, now Rev 2)) and will form the basis of the detailed mitigation plans for Development Parcels C, E, F and I. The internal design objectives reiterate the landscape design objectives reflected in Weddle's landscape management report whilst others repeat objectives defined for Compensation Areas A, B, C, F, J, K and Additional Areas 1, 2 and 3. Internal design objectives will be considered against the operational requirements and constraints of the Existing Drax Power Station Complex and where an objective cannot be met then the detailed Landscape and Biodiversity Strategies (as required under draft DCO requirement 7) will explain the reasons for this.
- 5.1.8 The internal design objectives include a set of overarching objectives and site specific objectives relating to:
- Open space;
 - Infrastructure (new proposed structures – Unit X and Unit Y and associated facilities);
 - Site entrances, New Road and margins; and
 - Site car parks (where these form part of the Proposed Scheme).
- 5.1.9 Table 1 below has been drawn from Table 3.1 Strategy Mitigation Table in the revised Outline Landscape and Biodiversity Strategy (Applicant's document reference 6.7, now Rev 002). It summarises where proposed mitigation measures would have an effect on the landscape resource and visual receptors. It should be noted that the assessment considered the Proposed Scheme as a whole, so whilst some residual visual effects may reduce following the establishment of mitigation in year 15, other effects will remain unchanged. This is a consequence of the location and orientation of the receptor. It should be noted that the Strategy Mitigation Table does not consider the internal design objectives and the implementation of such measures was not considered as part of the assessment reported in Chapter 10 of the Environmental Statement (which is therefore a conservative estimate).

Table 1 - Summary of Mitigation Measures, Strategic Objectives, Location of Mitigation Measures and Residual Effects

Landscape resource and visual receptors	Strategic landscape objective	Compensation Areas (CA) and Additional Areas (AA) refer to Figure 6.7.3 in the Outline landscape and Biodiversity Strategy	Residual effect in Year 15 following mitigation / enhancement
Landscape			
Local landscape character	Retain and protect existing trees and hedgerows	Throughout the red line boundary	Following establishment of mitigation in Year 15 Minor beneficial effects would be generated on the local landscape character (combination of local landscape features).
	Improve the age structure of existing woodland	CA B and AA1	
	Reinstate and enhance vegetation lost	CA A, B, C, F and J	
	Soften and integrate the development into the surrounding landscape	CA C and AA1 and 2	
	Reduce visual clutter through low level screening	CA B, C and F	
	Create an attractive working environment	CA C, AA1 and 2	
	Visual screening additional development within Drax's footprint		
	Visual connectivity across the site and beyond	CA A, B, C, J/K and AA1 and 2	
	Introduce and / or manage riparian and floodplain vegetation	CA K and AA2	

Landscape resource and visual receptors	Strategic landscape objective	Compensation Areas (CA) and Additional Areas (AA) refer to Figure 6.7.3 in the Outline landscape and Biodiversity Strategy	Residual effect in Year 15 following mitigation / enhancement
Visual			
Residential receptors within 1 km of the Site	Provide visual screening for some low level and filtered views	CA J and K (Wren Hall Lane and AGIs)	Following establishment of mitigation in Year 15 there would be a reduction in some visual effects to minor adverse. These relate to mitigation measures within AA1, AGIs and along Wren Hall Lane. Effects are subject to the orientation and location of the visual receptor as well as intervening vegetation and the built form.
Recreational receptors within 1 km of the Site (PRoW and other facilities)	Provide visual screening for some low level and filtered views	CA A, B, J and K – Wren Hall Lane, AGIs and AA1	
Recreational receptors between 1 and 3 km of the Site (PRoW and other facilities)	Provide visual screening for some low level and filtered views Soften and integrate the development within the surrounding landscape	CA J and K - AGIs	
Local transport uses within 1 km of the Site	Provide visual screening for some low level and filtered views	CA A, J and K	
Local transport uses between 1 and 3 km of the Site	Provide visual screening for some low level and filtered views	CA J and K	

6 MITIGATION CONSTRAINTS AND IDENTIFICATION OF POTENTIAL STRATEGIC MITIGATION AREAS

6.1 Constraints

6.1.1 As set out in Chapter 4 Consideration of Alternatives of the ES (Examination Library Reference [APP-072](#)), the objectives for the Proposed Scheme have influenced choices in relation to layout, structures and technologies, which have in turn influenced or provided parameters and constraints for the design of the Proposed Scheme including mitigation. As summarised in ES Chapter 10 Landscape and Visual Amenity (Examination Library Reference [APP-078](#)), the overarching constraints which inform the extent of, or potential for, mitigation – particularly of visual effects – are summarised under the headings below:

Site location:

- The Existing Drax Power Station Complex is the most appropriate location for the Proposed Scheme rather than a new greenfield location given its objectives relating to the re-utilisation of existing infrastructure (as part of the UK's transition to a low carbon economy), re-using as much existing operational land as possible, and maximising the efficiency of Drax Power Station.

Engineering:

- Units X and Y have been positioned as close to the existing steam turbines to reuse existing infrastructure, maximise existing infrastructure and enable ongoing operations of Drax's coal units until such a time as they are decommissioned.
- Gas turbine selection was based on achieving higher efficiency electricity production and lower emissions of CO₂ per MW. The Proposed Scheme uses vertical Heat Recovery Steam Generators (HRSGs) which are beneficial since they are compact and have a much smaller footprint compared to horizontal HRSGs allowing the plant layout to be optimised. Proximity to the steam turbines maximises efficiency by generating shorter steam pipe runs.
- Stack heights associated with Units X and Y are in response to reducing air quality impacts.

Accordingly, to meet Drax's objectives as set out in Section 2 of this document, development of the generating elements of the Proposed Scheme is necessarily concentrated within the Existing Drax Power Station Complex.

Extent of Best and Most Versatile Land:

- Within the immediate vicinity of the Power Station Site agricultural land is either Grade 1 or 2.

- 6.1.2 In addition to the above constraints, the Applicant's sustainability policy has been to not grow biomass on BMV Agricultural Land (Grade 1 and 2) and therefore it would be logical to apply the same policy to the introduction of landscape mitigation to reduce the effects on visual amenity and the aesthetic, experiential and perceptual qualities of landscape character. The Applicant's sustainability policy states:

"As the sustainability of the biomass we use is a fundamental part of our business, we make every effort to ensure all our supplies comply with the following principles:

- To significantly reduce greenhouse gas emissions compared to coal-fired generation*
- Does not endanger food supply or communities where the use of biomass is essential for subsistence (for example heat, medicines and building materials)*
- Does not adversely affect protected or vulnerable biodiversity and, where possible, give preference to biomass production that strengthens biodiversity.*
- Deploys good practices to protect and/or improve soil, water (both ground and surface) and air quality*
- Contributes to local prosperity in the area of supply chain management and biomass production*
- Contributes to the social wellbeing of employees and the local population in the biomass producing areas*
- No net release of carbon from the vegetation and soil of either forests or agricultural land."*

- 6.1.3 Constraints outlined above have restricted the extent of, or potential for, landscape and visual mitigation measures. It is considered that the benefits of providing further mitigation would be disproportionately low (the significance of effect would not change) compared to the disbenefits (primarily land take of Best and Most Versatile agricultural land) associated with such further mitigation and this is discussed further in the following section.

6.2 Identification of Strategic Mitigation Sites

- 6.2.1 To mitigate the visual effects of the original power station, substantial off-site planting was introduced in the 1950's and 60's at a scale reflective of the size of the original power station, creating the illusion of extensive woodland when viewed across the flat landscape and connecting minor elements in the landscape. The original planting sought to reduce the number of completely open views from main roads and villages.

- 6.2.2 As noted in Central Electricity Generating Board's (C.E.G.B) Northern Project Group Landscape Consultant's Report 1966 which relates to the Drax Power Station Site (provided to the Applicant by NYCC and which was prepared by A Weddle) the mitigation focused action on off-site and on-site planting. It recognised that mitigation close to the power station was limited by a wish to avoid taking excessive areas of valuable farmland and the time interval by which screening would become effective as summarised below:

"A large programme of offsite planting is planned in the zone of influence of the power station in order to build up general tree cover thus helping to provide partial screening from as many view points as possible. There are difficulties to overcome. This is an area of valuable farmland, and irrespective of any acquisition it would be imprudent to attempt large scale acreage of tree planting. Trees must be carefully sited to give maximum effect from smallest possible numbers, and siting should be on land of least value for farming. The general

principle employed is that of linking two separate existing blocks of planting by a narrow strip or even a single row of trees, giving the illusion of extensive woodland when viewed across this flat landscape. This linking process as well as increasing screening effectiveness serves to unite minor elements in the landscape and produce a smaller number of elements of increased size and more in scale with new construction – power stations, motorways, transmission towers, etc.” (Pages 4 and 5 of the C.E.G.B Landscape Consultant’s report, 1966).

- 6.2.3 The extent of potential mitigation required to redress the level and quantity of significant adverse effects would be at a strategic “landscape” scale similar to that proposed through Weddle’s original design and require more land to be compulsorily acquired. Figure 1.1 demonstrates the extent of mitigation that would be required to try and reduce effects on adjacent visual receptors and on Landscape Character Areas and Types within a 1 km radius of the Proposed Scheme. The key within Figure 1.1 illustrates the extent of tree belts (approximately 10 m wide) required to provide a visual screen. Tree belts would need to run alongside local roads, Public Rights of Way, the Trans Pennine Trail (National Cycle Route) as well as close to residential properties. Access routes are overlaid on top of the tree belts where relevant.
- 6.2.4 Despite the introduction of further mitigation within a 1 km radius of the Site in the form of tree belts, given the height of the proposed stacks, their relative position to the Existing Drax Power Station Complex and the flat open landscape in which the Proposed Scheme is located, such mitigation would only result in a marginal reduction in effect – not sufficient to change the level of significance of the effects predicted to be experienced. Such measures would also result in the loss of agricultural land and generate a negative effect on farmers’ livelihoods. The measures to provide the extent of planting shown in Figure 1.1 and detailed in Table 2 below plus the acquisition of private (largely arable) land necessary in order to provide such planting, far exceed, and so are disproportionate to, the minimal benefit to be gained from delivering such mitigation. Therefore, the provision of this additional mitigation within a 1 km radius, and a comparable level of mitigation for an area between 1 km and 3 km from the Proposed Scheme; and within which significant adverse landscape and visual effects would be experienced, is not considered feasible and is certainly not reasonably practicable.

Table 2 - Extent of Mitigation Within a 1 km Radius of the Site Shown in the Example in Figure 1.1

Extent of mitigation within a 1 km radius of the Site shown in Figure 1.1

Length of tree belts	24,449 linear metres
Area of tree belts x 10 m width	244,490 m ²
Extent of tree planting along PROW	10,950 linear metres
Area of tree belts x 10 m width	244,490 m ²

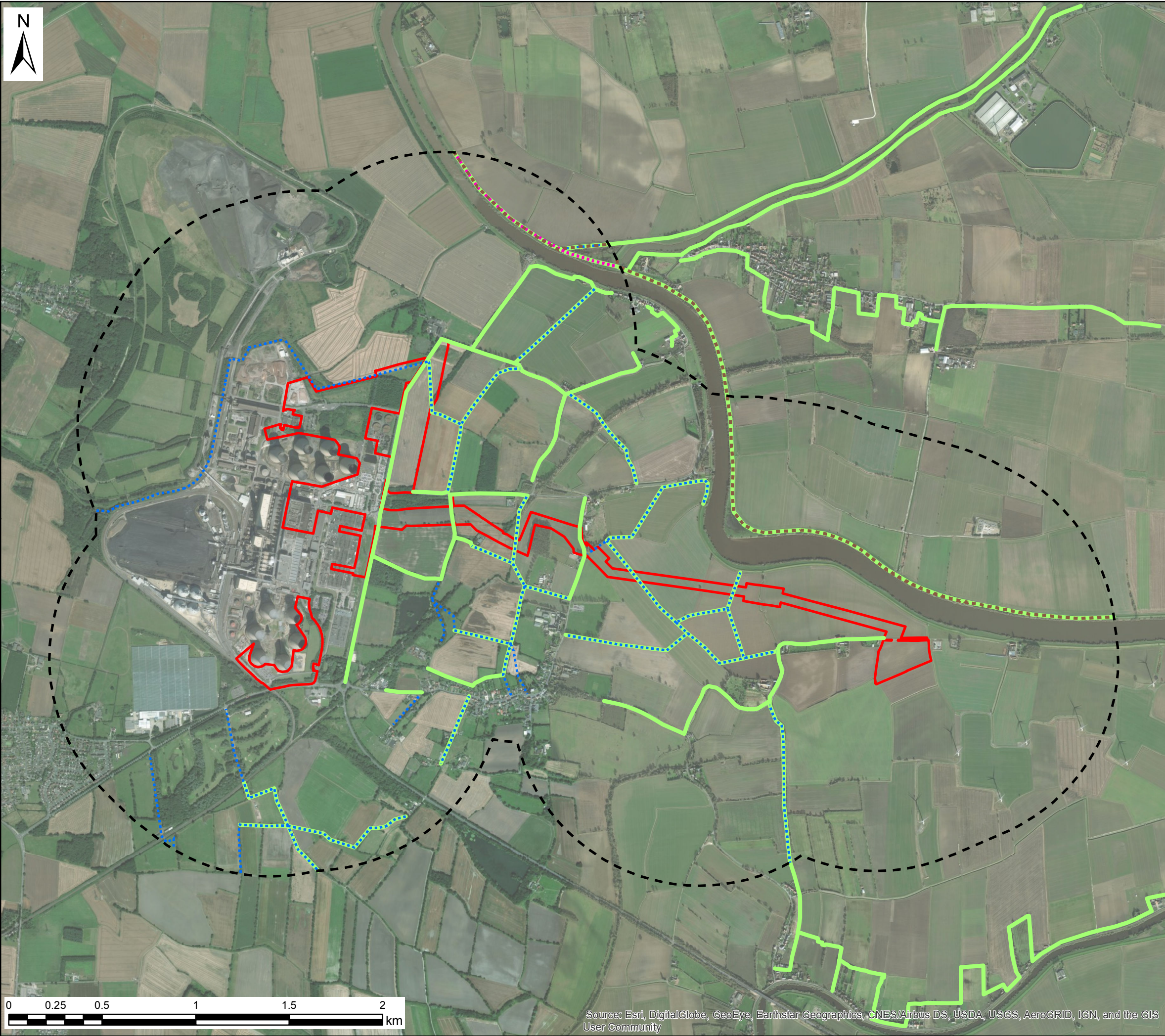
Note: All mitigation would be on private land; a combination of agricultural land and residential properties.

7 CONCLUSION

- 7.1.1 The landscape mitigation proposed through the Outline Landscape and Biodiversity Strategy (Examination Library Reference [APP-135](#), a revised version of which is submitted at Deadline 2 (Applicant's document ref 6.7, now Rev 002) and should the DCO be granted, the detailed Landscape and Biodiversity Strateg(ies) and accompanying plans, seeks to respond to local landscape character and associated features and reduce the extent of visual effects on a small number of visual receptors relating to the AGIs and other infrastructure including the GRF/Compressor Building.
- 7.1.2 Due to the scale and size of the Proposed Scheme it is not feasible to eliminate the localised visual effects on visual receptors and aesthetic, experience and perceptual effects on Landscape Character Areas and Types and the River Derwent ILA. As EN-2 states:
- "It is not possible to eliminate the visual impacts associated with a fossil fuel generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable."*
- 7.1.3 It is considered that the mitigation of local landscape character and associated features is as much as can be reasonably and practicably provided based on the constraints outlined in Section 4 of this paper and in light of the disproportionality and unfeasibility of providing further mitigation as set out in Section 6. The mitigation provided in the Outline Landscape and Biodiversity Strategy (Examination Library Reference [APP-135](#), a revised version of which has been submitted at Deadline 2, Applicant's document reference 6.7, now Rev 002) is proportionate and whilst the residual visual effects of the Proposed Scheme are acknowledged, they should be given limited weight in accordance with EN-2 paragraphs 2.6.5 to 2.6.10.
- 7.1.4 This is on the basis that additional mitigation would not in any meaningful way reduce the significant adverse effects on visual receptors within a 3 km radius of the Site or on the localised effects on the aesthetic, experiential and perceptual qualities of specific Landscape Character Areas and Types (refer to Figure 1.1 which demonstrates the extent of mitigation required for an area covering 1 km radius from the Proposed Scheme). The benefits of providing further mitigation would be disproportionately low (the significance of effect would not change) compared to the disbenefits (primarily land take of Best and Most Versatile agricultural land and the resultant sterilisation of land) associated with such further mitigation. Accordingly, the Applicant considers that it has taken the necessary measures to minimise the effects of the Proposed Scheme on landscape and visual amenity as far as reasonably practicable as required by paragraphs 2.6.5 and 2.6.8 of EN-2. Such measures are considered in the context of the existing Site and decisions taken in relation to the location, layout and design of the Proposed Scheme. Measures are based on the current baseline as it is today and not on the original Power Station Site.

Figure 1.1 - Extent of Mitigation Covering a 1 km Radius from the Proposed Scheme

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Key

Site Boundary

1km Study Area

Mitigation Planting

Belts of trees (approximately 10m minimum width) screening receptors

utilising local roads, PRoW, National Trails, cycle routes and residential properties

Access Routes Within 1km

Trans-Pennine Trail (Long Distance Walking Trail)

Trans-Pennine Trail (National Cycle Route)

Public Rights of Way (PRoW)

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Figure 1.1
Extent of mitigation covering a 1 km radius from the Proposed Scheme

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