

# The Drax Power (Generating Stations) Order

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

## Grid Connection Statement



The Planning Act 2008  
The Infrastructure Planning (Applications: Prescribed Forms and Procedure)  
Regulations 2009 – Regulation 5(2)(p) and 6(1)(a)(i)

### **Drax Power Limited**

Drax Repower Project

Applicant: DRAX POWER LIMITED  
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## Glossary

Abbreviation	Description
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 submitted with the DCO Application.</p>
The APFP Regulations	The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.
Application	The DCO Application.
The Applicant	Drax Power Ltd.
Associated Development	<p>Associated development is defined by section 115(2) of the Planning Act 2008 as development which is associated with a Nationally Significant Infrastructure Project (NSIP). In the case of the Proposed Scheme, the term Associated Development includes:</p> <ul style="list-style-type: none"> <li>- the up to two gas insulated switchgear banking buildings (described as Work No. 4 in Schedule 1 of the draft DCO);</li> <li>- the natural gas receiving facility and natural gas compression building (described as Work No. 5 in Schedule 1 of the draft DCO);</li> <li>- the AGI (described as Work No. 6 in Schedule 1 of the draft DCO);</li> <li>- the Gas Pipeline (described in Work No. 7 in Schedule 1 of the draft DCO);</li> <li>- the electrical connections to the existing 400 kilovolt National Grid substation (described in Work No. 8 in Schedule 1 of the draft DCO);</li> <li>- temporary construction laydown areas (described in Work No. 9 in Schedule 1 of the draft DCO);</li> <li>- landscaping and biodiversity enhancement measures (described in Work No. 11 in Schedule 1 of the draft DCO);</li> <li>- decommissioning and demolition of sludge lagoons and construction of replacement sludge lagoons (described in Work No. 12 in Schedule 1 of the draft DCO);</li> <li>- removal of existing 132 kilovolt overhead line and associated towers and foundations (described in Work No. 13 in Schedule 1 of the draft DCO);</li> <li>- passing place on Rusholme Lane (described in Work No. 14 in Schedule 1 of the draft DCO);</li> <li>- the Site Reconfiguration Works (described in Work No. 15 in Schedule 1 of the draft DCO); and</li> <li>- further associated development as set out in Schedule 1 of the draft DCO.</li> </ul>

	These developments are associated with the NSIP i.e. Unit X and Unit Y and the battery storage facilities (described in Work Nos. 1-3 in Schedule 1 of the draft DCO).
Carbon capture readiness	Carbon Capture readiness, with respect to a combustion plant's emissions of CO <sub>2</sub> , is achieved when the following conditions are met: <ul style="list-style-type: none"> <li>(a) suitable storage sites are available</li> <li>(b) it is technically and economically feasible to retrofit the plant with the equipment necessary to capture that CO<sub>2</sub>; and it is technically and economically feasible to transport such captured CO<sub>2</sub> to the storage sites.</li> </ul>
Carbon capture readiness reserve space	Space to be set aside to accommodate future carbon capture equipment, making the proposed plant in effect "carbon capture ready" for when the Carbon capture readiness state is achieved. <p>The Carbon capture readiness reserve space is described as Work No. 10 in Schedule 1 of the draft DCO submitted with the DCO Application.</p>
Combined Cycle Gas Turbine (CCGT)	A combined cycle gas turbine is an assembly of turbines that convert heat into mechanical energy. <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>
DCO Application	The application for a DCO in respect of the Proposed Scheme.
Development Consent Order (DCO)	A Development Consent Order (DCO) is made by the Secretary of State (SoS) pursuant to the Planning Act 2008 (PA 2008) to authorise a Nationally Significant Infrastructure Project (NSIP).
Drax Power Station	The existing biomass and coal fired power generation facility at the Existing Drax Power Station Complex.
Electrical connection	In respect of Unit X, underground electrical cables connecting Unit X to the existing 400 kilovolt National Grid substation as described in Work No. 8A of the draft DCO. <p>In respect of Unit Y, underground electrical cables connecting Unit Y to the existing 400 kilovolt National Grid substation and which may include a sealing end compound with overhead conductors and gantry as described in Work No. 8B of the draft DCO; and the removal of an existing 132 kilovolt overhead line and associated towers and foundations. The removal of the overhead line is</p>

	described as Work No. 13 in Schedule 1 of the draft DCO submitted with the DCO Application.
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 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).
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 submitted with the DCO Application.</p>
Gas Receiving Facility (GRF)	<p>This is required to receive the natural gas from the Gas Pipeline.</p> <p>The GRF is described as Work No. 5 in Schedule 1 of the draft DCO submitted with the DCO Application.</p>
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 submitted with the DCO Application.</p>
Heat Recovery Steam Generators (HRSG)	<p>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.</p> <p>The HRSGs form part of Work No. 1A (up to two HRSGs in connection with Unit X) and Work No. 2A (up to two HRSGs in connection with Unit Y) in Schedule 1 of the draft DCO submitted with the DCO Application.</p>
Laydown Area	<p>Areas that will be used during construction for the temporary locating of construction offices, warehouses, workshops, open air storage areas and car parking.</p> <p>The main construction laydown areas are described in Work No. 9 in Schedule 1 of the draft DCO submitted with the DCO Application, whilst construction laydown areas for the construction of the AGI are described in Work Nos. 6C and D, and for the</p>

	construction of the Gas Pipeline are described in Work No. 7B in Schedule 1 of the draft DCO.
Minimum Offtake Connection (MOC)	The Minimum Offtake Connection will be part of the AGI to be owned and operated by National Grid. The MOC will provide the gas connection to the National Grid Natural Transmission System. The MOC is described as Work No. 6A in Schedule 1 of the draft DCO submitted with the DCO Application.
National Planning Policy Framework (NPPF)	A document that sets out government's planning policies for England and how these are expected to be applied.
National Policy Statement (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 (OCGT)	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.
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.
Pipeline Inspection Gauge (PIG) Trap Facility (PTF)	System to allow remote cleaning of long stretches of pipeline. Will have a launching (PTF-L) and a receiving (PTF-R) either side of the pipeline stretch.
Pipeline Operational Area	The area within which the Gas Pipeline, the AGI and the GRF will be situated once constructed.
Planning Inspectorate (PINS)	The government agency responsible for administering and examining applications for development consent for NSIPs under the Planning Act 2008 on behalf of the SoS.

<p>Power Station Site</p>	<p>Areas within the Existing Drax Power Station Complex where:</p> <ol style="list-style-type: none"><li>1. The Site Reconfiguration Works are proposed to take place;</li><li>2. The temporary construction Laydown Area is to be located described in Work No. 9A in Schedule 1 of the draft DCO submitted with the DCO Application;</li><li>3. The Generating station equipment is proposed to be located;</li><li>4. The Electrical connection is proposed to be located; and</li><li>5. The decommissioning and demolition of sludge lagoons and construction of replacement sludge lagoons is proposed to take place, described as Work No. 12 in Schedule 1 of the draft DCO submitted with the DCO Application.</li></ol>
<p>Proposed Scheme</p>	<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).</p> <p>Each unit would have (subject to technology and commercial considerations) a battery energy storage facility with a capacity of up to 100 MW per unit, resulting in a combined battery energy storage capacity of up to 200 MW. All battery units would be stored in a single building.</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.

Drax is seeking consent for the flexibility to either:

- 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.

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 of up to 100 MW storage capacity would be constructed. The size of the building housing the battery storage facility would not change, as the building could house one larger battery which would allow the 100 MW output to be sustained for a longer duration. However, the fuel gas station and gas insulated switchgear would be smaller.

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.

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.

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.

The Proposed Scheme includes the Site Reconfiguration Works and the Electrical connection.

Drax's Proposed Scheme is described in more detail in Chapter 3 (Site and Project Description) of the ES Volume 1 (document reference 6.1).

Schedule 1 of the draft DCO submitted with the DCO Application lists out the elements comprised within the Proposed Scheme.



Rusholme Lane Area	Area required for passing places during the construction of the Gas Pipeline, AGI and GRF (described as Work No. 14 in Schedule 1 to the draft DCO submitted with the DCO Application).
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	<p>The Site Reconfiguration Works or Stage 0 refers to the works described below that are necessary to prepare the Power Station Site for the construction of the generating station equipment and the electrical connection. The works comprise:</p> <ol style="list-style-type: none"> <li>1. Demolition of the private squash court (no replacement), Learning Centre (consolidated into existing facilities); and</li> <li>2. Demolition of and reconstruction of car parking, turbine outage stores, contractor's compounds and welfare facilities.</li> <li>3. Construction of a cooling water spray screen between relocated facilities and the southern cooling towers.</li> </ol> <p>The Site Reconfiguration Works are the subject of a separate planning application under the TCPA (applied for in February 2018 and given reference no. PP-06688208v1) and are also included as part of the Proposed Scheme in the DCO Application, and may be carried out under either:</p> <ol style="list-style-type: none"> <li>1. Any TCPA planning permission that may be granted; or</li> <li>2. The Order.</li> </ol>
Unit X	<p>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, with a capability of up to 100MW. The total output from Unit X would be 1,900MW.</p> <p>Unit X is described in Work No. 1 of Schedule 1 to the draft DCO submitted with the DCO Application.</p>
Unit Y	<p>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, with a capability of up to 100MW. The total output from Unit Y would be 1,900MW.</p> <p>Unit Y is described in Work No. 2 of Schedule 1 to the draft DCO submitted with the DCO Application.</p>

## Abbreviations

Abbreviation	Term in full
AGI	Above Ground Installation
APFP	Applications: Prescribed Forms and Procedures
ATV	Agreement To Vary
BCA	Bilateral Connection Agreement
BESF	Battery Energy Storage Facility
CCGT	Combined Cycle Gas Turbine
DCO	Development Consent Order
EN-1	Overarching NPS for Energy
ES	Environmental Statement
GIS	Gas Insulated Switchgear
GRF	Gas Receiving Facility
GSUT	Generator Step Up Transformer
HSE	Health & Safety Executive
HRSGs	Heat Recovery Steam Generators
kV	Kilovolt
MOC	Minimum Offtake Connection
MW	Megawatts
NG	National Grid
NETS	National Electricity Transmission System
NGET	National Grid Electricity Transmission
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NTS	National Transmission System
OCGT	Open Cycle Gas Turbine
OHL	Overhead Line
PA 2008	Planning Act 2008 (as amended)
PINS	Planning Inspectorate
PRMS	Pressure Reduction and Metering Station
PTF	PIG Trap Facility
PTF-L	PIG Trap Launching station
SoS	Secretary of State

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## EXECUTIVE SUMMARY

1. This Grid Connection Statement has been prepared by WSP UK Limited on behalf of Drax Power Limited (Drax or the Applicant), to support an Application for a Development Consent Order (DCO).
2. The Proposed Scheme will provide up to 1,800 MW or up to 3,600 MW of electrical generation capacity (depending on whether one or both of Units 5 and 6 at the Existing Drax Power Station Complex are repowered). The term “repowered” means the existing coal-fired units would be decommissioned and replaced with newly constructed gas-fired units utilising the existing steam turbine and cooling system. Should one unit be repowered, then a single gas fired generating station will be constructed (known as Unit X) with a capacity of up to 1,800 MW, comprising up to two gas turbines and up to two Heat Recovery Steam Generators (HRSGs). Each unit would also have a battery storage capability of up to 100 MW (subject to technology and commercial considerations). If two units are repowered, the new gas-fired generating stations would have a combined capacity of up to 3,600 MW and a combined battery storage capacity of up to 200 MW (totalling a capacity of up to 3,800 MW).
3. In order to support export of the electricity generated, new connections are required from Drax Power Station to the National Electricity Transmission System (NETS).
4. The purpose of this Grid Connection Statement is to outline the process for connecting to the NETS and the contractual agreements that need to be in place for this to occur.
5. The Applicant has submitted an application for an Agreement To Vary (ATV) the existing Bilateral Connection Agreement (BCA) between the Applicant and National Grid Electricity Transmission (NGET) at Drax Power Station to provide a connection for Unit X to the NETS. The Applicant intends to sign and enter into the ATV by 2 June 2018.
6. A further application for an ATV will be submitted to NGET for Unit Y when required.
7. The connection point to the NETS will be via Generator Step-Up Transformers (GSUT) to the NGET 400 kV substation at the Existing Drax Power Station Complex.
8. The Applicant owns the freehold interest in all of the land on which the Electrical Connection will be made, up to the substation. The freehold in the land on which the substation is situated is owned by NGET, subject to certain rights over such land that Drax has the benefit of. However, Drax requires additional rights in the land on which the substation is located to enable Drax to install and maintain the connection. These additional rights are being sought through the DCO, but Drax is also discussing these rights with NGET.

# 1 INTRODUCTION

- 1.1.1. This Grid Connection Statement has been prepared by WSP UK Limited on behalf of Drax Power Limited (Drax or the Applicant), to support an Application for a Development Consent Order (DCO).
- 1.1.2. The Applicant is proposing to repower up to two of the existing six generating units at the Existing Drax Power Station Complex from coal-fired to new gas turbines that can operate in both combined cycle and open cycle modes. Each unit would (subject to technology and commercial considerations) be connected to its own battery energy storage facility. These proposals and the associated infrastructure would have a total combined capacity of up to 3,800 MW of electricity. The repowering of each unit from coal to gas involves the construction of a gas-fired generating station with a capacity of more than 50 MW. Each battery energy storage facility would also have a capacity of more than 50 MW. As such, the Proposed Scheme is classed as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 (as amended) (PA 2008) (Ref. 1.1).
- 1.1.3. A DCO is required to construct and operate the Proposed Scheme as it falls within the definition and thresholds for a NSIP under sections 14 and 15(2) of the PA 2008. The DCO, if made by the Secretary of State (SoS), would be known as the Drax Power (Generating Stations) Order (the Order).
- 1.1.4. In accordance with regulation 5(2)(b) of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) 2009 (the APFP Regulations) (Ref. 1.2) and in accordance with the Planning Inspectorate (PINS) Advice Note 6: Preparation and submission of application documents (Version 7, dated February 2016) (Ref. 1.3), a draft of the proposed DCO (document reference 3.1) has been submitted to the SoS as part of this Application.
- 1.1.5. The Grid Connection Statement has been submitted under regulations 5(2)(p) and 6(1)(a)(i) of the APFP Regulations. Regulation 6(1)(a)(i) requires an applicant to submit a statement of who will be responsible for designing and building the connection to the electricity grid.
- 1.1.6. Paragraph 4.9.1 of the Overarching Energy National Policy Statement for Energy (EN-1) (Ref. 1.4) emphasises that it is for the applicant to ensure that there will be necessary infrastructure and capacity in the transmission and distribution network to accommodate the electricity to be generated by a proposed new power plant.
- 1.1.7. The purpose of the Grid Connection Statement is to outline the process for connecting the new units to the National Electricity Transmission System (NETS) and the contractual agreements that need to be in place for this to occur.
- 1.1.8. A description of the connection works is provided and the responsibility for the required design and construction for the connection has been outlined.
- 1.1.9. Drax owns the freehold interest in all of the land on which the Electrical Connection will be made, up to the substation. The freehold in the land on which the substation is situated is owned by National Grid Electricity Transmission plc (NGET), subject to certain rights over such land that Drax has the benefit of. However, Drax requires additional rights in the land on which the substation is located to enable Drax to install and maintain the connection.

These additional rights are being sought through the DCO, but Drax is also discussing these rights with NGET.

## 2 PROJECT DESCRIPTION

### 2.1 The Applicant

- 2.1.1. The Applicant is Drax Power Limited. Drax Power Station is owned and managed by the Applicant, who is part of the Drax Group Plc, one of the UK's largest energy producers.

### 2.2 Site Description

#### Existing Drax Power Station Complex

- 2.2.1. Drax Power Station is a large power station, comprising originally of six coal-fired units. It was originally built, owned and operated by the Central Electricity Generating Board and had a capacity of just under 2,000 MW when Phase 1 was completed in 1975. Its current capacity is 4,000 MW after the construction of Phase 2 in 1986.
- 2.2.2. Three of the original six coal-fired units are now converted to biomass (Units 1-3) and this is assessed as the current baseline in the Environmental Statement (ES) (document reference 6.1). By the latter half of 2018, four units (Units 1-4) will run on biomass with only two units (Units 5 and 6) running on coal. One or both of Units 5 and 6 will be repowered as part of the Proposed Scheme, this means the existing coal-fired units would be decommissioned and replaced with newly constructed gas-fired units utilising some of the existing infrastructure. The area within the Existing Drax Power Station Complex where development is proposed is referred to as the Power Station Site and is approximately 53.4 ha.

#### Pipeline Area

- 2.2.3. The Gas Pipeline route is approximately 3 km in length and crosses agricultural land to the east of the Existing Drax Power Station Complex. The land within the Pipeline Construction Area is 25.4 ha and the land within the Pipeline Operational Area is 2.4 ha.
- 2.2.4. An additional area is located on Rusholme Lane (Rusholme Lane Area) to accommodate a potential passing place for traffic during construction of the Gas Pipeline. This is considered to be part of the Pipeline Area.

#### Site Boundary

- 2.2.5. The Site is approximately 78.9 ha and lies approximately 4 m Above Ordnance Datum (AOD).
- 2.2.6. The Site Boundary (depicted with a red line in Chapter 1 (Introduction) Figure 1.1 of the ES) represents the maximum extent of all potential permanent and temporary works required as part of the Proposed Scheme.
- 2.2.7. The Power Station Site, the Carbon capture readiness reserve space and the Pipeline Area (including the Rusholme Lane Area) have been divided into a number of Development Parcels shown on Chapter 1 (Introduction) Figure 1.3. of the ES.

2.2.8. The current land uses at these development parcels are described in Table 3-1 of the ES Chapter 3 (Site and Project Description).

### 2.3 The Proposed Scheme

2.3.1. The Proposed Scheme is 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.

2.3.2. 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).

2.3.3. Each gas generating station (or unit) 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 generating station (or unit). Each generating station (or 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 5 and 6 be repowered, a combined capacity of up to 3,600 MW. The new gas turbine generating stations (or units) have been designated the terms "Unit X" and "Unit Y".

2.3.4. Each of Unit X and Unit Y would have (subject to technology and commercial considerations) a battery energy storage facility with a capacity of up to 100 MW per Unit, resulting in a combined battery energy storage capacity of up to 200 MW. The two battery energy storage facilities would be stored in a single building.

2.3.5. The total combined capacity of the two gas fired generating stations, Unit X and Unit Y, and two battery storage facilities (i.e. the total combined capacity of the Proposed Scheme) is therefore 3,800 MW.

2.3.6. The DCO seeks consent for the following flexibility:

- Repowering of either Unit 5 or 6 and construction of Unit X as a gas fired generating station (this would leave either Unit 5 or 6 (depending on which had been repowered) as a coal-fired unit); or
- Repowering of both Units 5 and 6 and construction of Unit X and Unit Y as two gas fired generating stations.

2.3.7. In the event that a single unit is repowered and Unit X constructed, up to two gas turbines and up to two HRSGs and (subject to technology and commercial considerations) a battery energy storage facility of up to 100 MW storage capacity would be constructed. The size of the building housing the battery storage facility would not change, as the building could house sufficient battery capacity to allow the 100 MW output to be sustained for a longer duration. However, the fuel gas station and gas insulated switchgear required for the Gas Pipeline would be smaller.

- 2.3.8. In the event that two units are repowered and both Unit X and Unit Y are constructed, then construction works would be undertaken consecutively rather than concurrently. It is assumed for the purposes of the ES that there would be a gap of a year between construction periods, but this could be longer depending on commercial considerations. Unit Y would mirror Unit X, with up to two gas turbines and up to two HRSGs and (subject to technology and commercial considerations) a battery energy storage facility of up to 100 MW storage capacity which would be housed in the building constructed for the battery for Unit X.
- 2.3.9. 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 whether Unit X was constructed or whether Unit X and Unit Y was constructed.
- 2.3.10. 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.
- 2.3.11. At the connection to the NTS there will be an above ground installation (AGI) south of Rusholme Lane. The AGI involves 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.
- 2.3.12. A full description of the Proposed Scheme and the Site is contained in Chapter 3 (Site and Project Description) of the ES.

### 3 CONTRACTUAL AGREEMENTS

- 3.1.1. NGET owns and manages the NETS in England and Wales.
- 3.1.2. Applicants must secure connection with NGET if, in constructing a generating station, they want the output of that power station to be distributed across the NTS (certain power stations are used "on-site" only whilst others connect into the local distribution network).
- 3.1.3. For Unit X, the Applicant has submitted an application for an Agreement to Vary (ATV) its existing Bilateral Connection Agreement (BCA) A/NP/90/1-9EN(5) of 18 September 2001 (as amended from time to time) on 28 November 2017. The ATV to the existing BCA, received from NGET on 7 February 2018, will provide the Unit X generating station equipment with a connection to the NETS by September 2023 at the latest. The Applicant intends to sign and enter into the ATV by 2 June 2018. On the same date, the Applicant will also enter into a construction agreement and related documentation with NGET to connect the Unit X generating station equipment to the NETS.
- 3.1.4. For Unit Y, Drax will submit a further ATV application to NGET in relation to the existing BCA A/NP/90/1-9EN(5) of 18 September 2001 when required to support connection of the Unit Y generating station equipment.



## 4 RESPONSIBILITIES FOR DESIGNING AND BUILDING THE GRID CONNECTION

- 4.1.1. The Electrical Connection would connect into the existing National Grid 400 kV Substation (part of the NETS), which is adjacent to the Existing Drax Power Station Complex.
- 4.1.2. The generating station equipment for each unit will comprise two new gas turbines and a Battery Energy Storage Facility (BESF) connected to the NETS via generator step-up transformers (GSUT) to the NGET 400 kV substation at the Existing Drax Power Station Complex. Connection for Unit X is expected to be made at spare bay 6 in the substation and connection for Unit Y is expected to be made using spare bay 5. The existing connection for the steam turbines (currently known as Units 5 and 6) will remain unchanged.
- 4.1.3. Each set of generating station equipment will be electrically connected (banked) using Gas Insulated Switchgear (GIS) located at the Existing Drax Power Station Complex to form single connections for each set of generating station equipment.
- 4.1.4. Connection from the GSUT to the GIS and from the GIS to the 400 kV Substation will be by underground cable. The cables would then connect to sealing end compounds, which would bring the cables above ground and connect to the spare bays forming part of the existing NETS. This will complete the connection between the generating station equipment for Units X and Y and the NETS.
- 4.1.5. Unit Y may also require a short length of overhead line (OHL) to connect to spare bay 5 to avoid existing buried 400 kV cables, which would require the underground cable for Unit Y to terminate outside of the existing substation boundary. The connection from the sealing end compounds into spare bay 5 would be made by new overhead conductors suspended from suitable gantries to connect to existing substation structures.
- 4.1.6. Further information on the Electrical Connection is contained in Chapter 3 (Site and Project Description) of the ES. It is concluded in the ES that it will be unlikely that there will be any significant environmental effects as a result of the Electrical Connection.
- 4.1.7. In respect of Unit X, the construction agreement with NGET confirms the user works and transmission reinforcement works required to secure the connection of the generating station equipment to the NETS.
- 4.1.8. A construction agreement and related documentation will be concluded between the Applicant and NGET at the same time as the ATV which will secure the design and build of the Electrical Connection for Unit X. A further application for an ATV and construction agreement will be submitted to NGET for Unit Y when required.
- 4.1.9. As such, Drax considers that the proposed ATV to the BCA A/NP/90/1-9EN(5) of 18 September 2001 and associated construction agreement / documentation secures the design and build of the Electrical Connection for Unit X.
- 4.1.10. The Electrical Connection for Unit Y generating station equipment is to be secured by a further ATV to BCA A/NP/90/1-9EN(5) of 18 September 2001 when required.

## 5 ACQUISITION OF LAND AND RIGHTS

- 5.1.1. Drax owns the freehold interest in the Existing Drax Power Station Complex on which the Electrical Connection will be made, up to the substation. The freehold in the land on which the sub-station is situated is owned by NGET, subject to certain rights over such land that Drax has the benefit of. However, Drax requires additional rights in the land on which the substation is located to enable Drax to install and maintain the connection. These additional rights are being sought through the DCO, but Drax is also discussing these rights with NGET.
- 5.1.2. Work Number 4 in Schedule 1 to the draft DCO, the new GIS banking buildings, covers the construction and operation of the part of the Electrical Connection on the Existing Drax Power Station Complex up to the substation. Work Number 8 covers the construction and operation of the Electrical Connection from Work Number 4 into the NGET substation, for each unit.

## 6 CONSENT FOR CONNECTION WORKS

- 6.1.1. The Electrical Connection forms part of the works included within the DCO Application, and therefore no separate planning permission is required. The draft DCO provides at Article 6 for the exercise of the powers in relation to the Electrical Connection (Work Number 8) by both Drax and NGET to allow NGET to construct, operate and maintain these works in accordance with the construction agreement / documentation to be entered into (as set out in section 4 of this Grid Connection Statement).
- 6.1.2. Drax therefore considers that, if the DCO is made in substantively the same terms as those set out in the draft DCO development consent for the connection to the electricity grid will have been secured.

## 7 CONCLUSION

- 7.1.1. This Grid Connection Statement has demonstrated that:
- There is no reason why NETS grid connections would not be possible for the Proposed Scheme.
  - The Electrical Connection forms part of the works included within the DCO Application and has been assessed as part of Chapter 3 (Site and Project Description) of the ES submitted as part of the DCO Application.
  - The Electrical Connection is technically feasible and it is concluded in the ES that it will be unlikely that there will be any significant environmental effects as a result of the electrical connection.
  - The necessary contractual agreement is being secured for Unit X to connect with NGET through an ATV to Drax's existing BCA A/NP/90/1-9EN(5) of 18 September 2001. A construction agreement and related documentation will be concluded between the

Applicant and NGET at the same time as the ATV which will secure the design and build of the Electrical Connection for Unit X.

- The Electrical Connection for Unit Y is to be secured by a further ATV to the existing BCA A/NP/90/1-9EN(5) of 18 September 2001 when required.

## REFERENCES

- Ref. 1.1 The Planning Act 2008 (as amended).
- Ref. 1.2 The Infrastructure Planning (Applications: Prescribed Forms and Procedures) 2009.
- Ref. 1.3 The Planning Inspectorate Advice Note 6: Preparation and submission of application documents (Version 7, dated February 2016).
- Ref. 1.4 Overarching Energy National Policy Statement for Energy (EN-1).