

The Eggborough CCGT Project

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The Eggborough CCGT (Generating Station) Order

Land at and in the vicinity of the Eggborough Power Station site,
near Selby, North Yorkshire DN14 0BS

Electricity Grid Connection Statement

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
Regulations 2009

Regulation 6(1)(a)(i)



Applicant: Eggborough Power Limited

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GLOSSARY

Abbreviation	Description
APFP	The Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009
CCGT	Combined Cycle Gas Turbine – a highly efficient form of energy generation technology. An assembly of heat engines work in tandem using the same source of heat to convert it into mechanical energy which drives electrical generators and consequently generates electricity.
CCR	Carbon Capture Readiness
DCO	Development Consent Order – made by the relevant Secretary of State pursuant to The Planning Act 2008 to authorise a Nationally Significant Infrastructure Project. A DCO can incorporate or remove the need for a range of consents which would otherwise be required for a development. A DCO can also include rights of compulsory acquisition.
EIA	Environmental Impact Assessment – the assessment of the likely significant environmental effects of a development undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulation 2009.
EP UK	EP UK Investments Ltd
EPH	Energetický A Prumyslový Holding – the holding company of EP UK. EPH owns and operates assets in the Czech Republic, Slovak Republic, Germany, Italy, Hungary, Poland and the United Kingdom.
EPH	Energetický A Prumyslový Holding
EPL	Eggborough Power Limited (The Applicant)
ES	Environmental Statement
FCO	Full Connection Offer
GIL	Gas Insulated Lines
GIS	Gas Insulated Switchgear
kV	kilovolt
m	metres
ModAp	Modification Application

Abbreviation	Description
MW	Megawatts
NG	National Grid
NGET	National Grid Electricity Transmission
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Projects - Defined by the Planning Act 2008 and cover projects relating to energy (including generating stations, electric lines and pipelines); transport (including trunk roads and motorways, airports, harbour facilities, railways and rail freight interchanges); water (dams and reservoirs, and the transfer of water resources); waste water treatment plants and hazardous waste facilities. These projects are only defined as nationally significant if they satisfy a statutory threshold in terms of their scale or effect.
NTS	National Transmission System
NYCC	North Yorkshire County Council
PINS	Planning Inspectorate – executive agency of the Department for Communities and Local Government of the United Kingdom Government. It is responsible for determining final outcomes of town planning.
SDC	Selby District Council
SoS	Secretary of State – the decision maker for DCO applications and head of Government department. In this case the SoS for the Department for Business, Energy & Industrial Strategy (formerly the Department for Energy and Climate Change).
the Order	Eggborough CCGT (Generating Station) Order

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SUMMARY

1. This document sets out who will be responsible for designing and building the Proposed Grid Connection for the Proposed Development, and demonstrates that there is no reason why an electrical connection would not be possible.
2. The preferred route for the Proposed Grid Connection has been determined based on technical and environmental considerations. 400kV underground cables will connect the Proposed Power Plant Site to the existing National Grid (NG) substation located on the site of the existing coal-fired power station. As the cables are underground, there will be no overhead pylons.
3. The indicative route of the cables is shown on the Indicative Electrical Connection Plan (Application Document Ref. No. 4.7) and the limits of deviation within which the works would occur are shown on the Works Plan (Application Document Ref. No. 4.4 (Sheet 4)).
4. A new 400kV Gas Insulated Switchgear (GIS) substation is being considered as an option to minimise the number of cables and the corridor width approaching the NG substation, to minimise the number of bays taken up in the NG substation, and to more evenly feed power onto the NG busbars. There are two options of power station configuration, namely: (a) up to 3 x single shaft units or (b) up to 1 x single shaft unit plus (2+1) multi shaft units. Thus, there are four connection options in total.
5. The cable technology may be conventional buried cables, Gas Insulated Lines (GIL) or a third type proposed by the Contractor for EPL's consideration.
6. EPL has submitted a ModAp (Modification Application) to NG to increase the export power capability from the current circa 2,000MW up to 2,500MW gross.
7. The Applicant will be responsible for the design and construction of the Combined Cycle Gas Turbine Plant and its grid connection as far as the compound just outside the NG substation. This will be done by the Applicant's EPC Contractor. NG will be responsible for upgrading its substation as a result of the new Combined Cycle Gas Turbine Plant design. NG will also make the actual connection of the Applicant's 400kV circuits to NG's substation.
8. EPL owns and controls all of the land required for the Proposed Grid Connection.

1.0 INTRODUCTION

Overview

- 1.1 This 'Electricity Grid Connection Statement' has been prepared on behalf of Eggborough Power Limited ('EPL' or the 'Applicant'). It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Business, Energy and Industrial Strategy, under section 37 of 'The Planning Act 2008' (the 'PA 2008').
- 1.2 EPL is seeking development consent for the construction, operation and maintenance of a new gas-fired electricity generating station with a gross output capacity of up to 2,500 megawatts ('MW'), including electrical and water connections, a new gas supply pipeline and other associated development (the 'Project' or 'Proposed Development') on land at and in the vicinity of the existing Eggborough coal-fired power station, near Selby, North Yorkshire.
- 1.3 A DCO is required for the Proposed Development as it falls within the definition and thresholds for a 'Nationally Significant Infrastructure Project' (a 'NSIP') under sections 14 and 15(2) of the PA 2008.
- 1.4 The DCO, if made by the SoS, would be known as the 'Eggborough CCGT (Generating Station) Order' (the 'Order').

EPL

- 1.5 EPL owns and operates the existing Eggborough coal-fired power station (the 'existing coal-fired power station'), near Selby, including a significant proportion of the land required for the Proposed Development.
- 1.6 EPL was acquired by EP UK Investments Ltd (EP UK) in late 2014; a subsidiary of Energetický A Průmyslový Holding ('EPH'). EPH owns and operates energy generation assets in the Czech Republic, Slovak Republic, Germany, Italy, Hungary, Poland and the United Kingdom.

The Proposed Development Site

- 1.7 The Proposed Development Site (the 'Site' or the 'Order limits') is located at and in the vicinity of the existing coal-fired power station approximately 8 kilometres south of Selby.
- 1.8 The existing coal-fired power station is bound to the north by Wand Lane, with the River Aire located approximately 650 metres ('m') further to the north and the A19 Selby Road immediately to the west. Eggborough Village is located approximately 750 m to the south-west.
- 1.9 The entire Site lies within the administrative boundaries of Selby District Council ('SDC') and North Yorkshire County Council ('NYCC').
- 1.10 The existing coal-fired power station was officially opened in 1970 and comprises four coal-fired boilers units, which together are capable of generating up to 2,000 MW of electricity. The existing coal-fired power station also includes a turbine hall and boiler house, an emissions stack (chimney) of approximately 198 m in height, eight concrete cooling towers of approximately 115 m in height, an administration and control block, a coal stockyard and a dedicated rail line for the

delivery of coal, in addition to ancillary buildings, structures and infrastructure and utility connections.

- 1.11 The Site itself extends to approximately 102 hectares and comprises land within the operational area of the existing coal-fired power station for the new gas-fired generating station and electrical and groundwater supply connections; corridors of land to the north of the existing coal-fired power station for the cooling water connections and gas supply pipeline; an area of land to the south-east of the main coal stockyard for surface water discharge connections; and corridors of land to the west and south of the operational area of the existing coal-fired power station for ground and towns water supply connections and access.
- 1.12 The land required for the generating station and electrical and groundwater connections is owned by EPL, as well as the majority of the land for the cooling and towns water and surface water discharge connections. The majority of the land required for the gas supply pipeline is not owned by EPL.
- 1.13 The area surrounding the Site is predominantly flat and for the most part comprises agricultural land interspersed with small settlements and farmsteads. The area is however crossed by transport infrastructure, notably the A19 and railway lines, including the East Coast Mainline, in addition to overhead electricity lines associated with the existing coal-fired power station and other power stations within the wider area.
- 1.14 A more detailed description of the Site is provided at Chapter 3 'Description of the Site' of the Environmental Statement ('ES') Volume I (Application Document Ref. 6.2).

The Proposed Development

- 1.15 The main components of the Proposed Development are summarised below:
- The 'Proposed Power Plant' (Work No. 1) - an electricity generating station with a gross output capacity of up to 2,500 MW located on the main coal stockyard area of the existing coal-fired power station, comprising:
 - Work No. 1A - a combined cycle gas turbine ('CCGT') plant, comprising up to three CCGT units, including turbine hall and heat recovery steam generator buildings, emissions stacks and administration/control buildings;
 - Work No. 1B - a peaking plant and black start plant fuelled by natural gas with a combined gross output capacity of up to 299 MW, comprising a peaking plant consisting of up to two open cycle gas turbine units or up to ten reciprocating engines and a black start plant consisting of one open cycle gas turbine unit or up to three reciprocating gas engines, including turbine buildings, diesel generators and storage tanks for black start start-up prior to gas-firing and emissions stacks;
 - Work No. 1C - combined cycle gas turbine plant cooling infrastructure, comprising up to three banks of cooling towers, cooling water pump house buildings and cooling water dosing plant buildings; and
 - ancillary buildings, enclosures, plant, equipment and infrastructure connections and works.
 - The 'Proposed Electricity Connection' (Work No. 3) - electrical connection works, comprising:

- Work No. 3A - up to 400 kilovolt ('kV') underground electrical cables to and from the existing National Grid ('NG') 400 kV substation;
- Work No. 3B - works within the NG substation, including underground and over electrical cables, connection to busbars and upgraded or replacement equipment.
- The 'Proposed Cooling Water Connections' (Work No. 4) - cooling water connection works, comprising works to the existing cooling water supply and discharge pipelines and intake and outfall structures within the River Aire, including, as necessary, upgraded or replacement pipelines, buildings, enclosures and structures, and underground electrical supply cables, transformers and control systems cables.
- The 'Proposed Ground Borehole and Towns Mains Water Connections' (Work No. 5) - ground and towns water supply connection works, comprising works to the existing groundwater boreholes and pipelines, existing towns water pipelines, replacement and new pipelines, plant, buildings, enclosures and structures, and underground electrical supply cables, transformers and control systems cables.
- The 'Proposed Access and Rail Works' (Work No. 10) - rail infrastructure and access works, comprising alterations to or replacement of the existing private rail line serving the existing coal-fired power station site, including new rail lines, installation of replacement crossover points and ancillary equipment and vehicular and pedestrian access and facilities.
- The 'Proposed Surface Water Discharge Connection' (Work No. 9) - surface water drainage connection works to Hensall Dyke to the south-east of the main coal stockyard, comprising works to install or upgrade drainage pipes and works to Hensall Dyke.
- The 'Proposed Gas Connection' (Work No. 6) - gas supply pipeline connection works for the transport of natural gas to Work No. 1, comprising an underground high pressure steel pipeline of up to 1,000 millimetres (nominal bore) in diameter and approximately 4.6 kilometres in length, including cathodic protection posts, marker posts and underground electrical supply cables, transformers and control systems cables, running from Work No. 1 under the River Aire to a connection point with the National Transmission System ('NTS') for gas No. 29 Feeder pipeline west of Burn Village.
- The 'Proposed AGI' (Work No. 7) - an Above Ground Installation ('AGI') west of Burn Village, connecting the gas supply pipeline (Work No. 6) to the NTS No. 29 Feeder pipeline, comprising:
 - Work No. 7A - a compound for National Grid's apparatus; and
 - Work No. 7B - a compound for EPL's apparatus.
- The 'Proposed Construction Laydown Area' (Work No. 2A) - an area for temporary construction and laydown during the construction phase, including contractor compounds and facilities., requiring the infilling of the existing coal-fired power station back-up cooling water lagoon.
- The 'Proposed Carbon Capture Readiness ('CCR') Land' (Work No. 2B) - an area of land to be reserved for carbon capture plant should such technology become viable in the future. It is proposed that this 'reserve' land is provided on part of the area to be used for temporary construction and laydown.
- The 'Proposed Retained Landscaping' (Work No. 8) - encompassing the existing mature tree and shrub planting along the northern and eastern sides of Wand Lane and to the eastern

boundary of the existing coal-fired power station site, including that on the embankment around the eastern, southern and western boundaries of the main coal stockyard.

- 1.16 The 'associated development', for the purposes of section 115 of the PA 2008 comprises Work Nos. 2 to 10 of the Proposed Development.
- 1.17 It is anticipated that subject to the DCO having been made by the SoS (and a final investment decision by EPL), construction work on the Proposed Development would commence in early 2019. The overall construction programme is expected to last approximately three years, although the duration of the electrical and water connection and gas supply pipeline connection works would be significantly less. The construction phase is therefore anticipated to be completed in 2022 with the Proposed Development entering commercial operation later that year.
- 1.18 A more detailed description of the Proposed Development is provided at Schedule 1 'Authorised Development' of the draft DCO and Chapter 4 'The Proposed Development' of the ES Volume I (Application Document Ref. 6.2) and the areas within which each of the main components of the Proposed Development are to be built is shown by the coloured and hatched areas on the Works Plans (Application Document Ref. 4.4).

The Purpose and Structure of this Document

- 1.19 The purpose of this document is to meet the requirements of Regulation 6(1)(a)(i) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which requires the Applicant to provide a statement setting out who will be responsible for designing and building the proposed Grid Connection to the Proposed Development.
- 1.20 This Electricity Grid Connection Statement has, therefore, been prepared to satisfy the requirements of Regulation 6(1)(a)(i) and to demonstrate that there is no reason why a grid connection would not be possible.
- 1.21 The preferred route and technology for the grid connection has been determined following technical and environmental considerations. This connects the proposed generating station to an existing National Grid Electricity Transmission (NGET) 400kV substation located on EPL's land on the existing coal-fired power station site.
- 1.22 The 400kV circuits connecting the new generating station to the existing 400kV NGET substation will be underground as far as the substation.
- 1.23 The works required for the Grid Connection are set out at Work No. 3 of Schedule 1 of the draft DCO (Application Document Ref. No. 2.1), while an indicative route for the connections and the area within which the works required for them would occur are shown on the Works Plans (Application Document Ref. No. 4.4 – Sheet 4).
- 1.24 Section 2 of this document describes the grid connection route and connection point. Section 3 confirms the contractual agreements that are in place, while Section 4 details the responsibilities for designing and building the grid connection. Section 5 explains the acquisition of land and rights that is required, Section 6 deals with the consent required for the connection works and Section 7 sets out the conclusions.

2.0 PROPOSED GRID CONNECTION

- 2.1 EPL currently has a connection agreement with NGET to export circa 2,000MW. This will be increased to up to 2,500MW for the Proposed Development using the ModAp (Modification Application) method. This application has been submitted by EPL.

Grid connection options

- 2.2 The connection to the NGET substation will be made by underground cables or Gas Insulated Lines (GIL) at 400kV. This was chosen after also considering overhead cables - the latter was found to be more costly and also had a potentially significant visual impact.
- 2.3 A new 400kV Gas Insulated Switchgear (GIS) substation has been considered as an option, to be located at the Proposed Development, to minimise the number of cables approaching the NGET substation where there is a limited width available for such cables, to minimise the number of bays taken up in the NGET substation, and to more evenly feed power onto the NGET busbars within their substation. See the Indicative Electrical Connection Plan (Application Document Ref. No. 4.7). There are two options of power station configuration, namely: (a) up to 3 x single shaft units or (b) up to 1 x single shaft unit plus (2+1) multi shaft units. Thus, there are four connection options namely:
- (i) 3 x single shaft configuration with new GIS substation
 - (ii) 3 x single shaft configuration without new GIS substation
 - (iii) 1 x single shaft unit plus (2+1) multi shaft units configuration with new GIS substation
 - (iv) 1 x single shaft unit plus (2+1) multi shaft units configuration without new GIS substation
- 2.4 The type of technology has not yet been chosen. This may be conventional buried cables and GIL are also considered, as they allow the 400kV circuits to be installed closer together and therefore take up a narrower corridor. The chosen EPC Contractor may offer a different type of technology. Whichever technology is chosen, the circuits will be within the scope and parameters of the DCO, will be buried underground and will need to be approved by EPL.
- 2.5 At this stage in the project development and design, a definitive route for the 400kV circuits cannot yet be determined. However, the circuits will be installed within a construction corridor as shown by the Works Plans (Application Document Ref. No. 4.4 – Sheet 4); this is to allow for stockpiling of materials, installation of the circuits and route deviations to accommodate varying ground conditions along the route.

Connection at NGET 400kV substation

- 2.6 The connection point at the NGET 400kV substation is expected to be at the earth switch terminals in the compound just outside the National Grid substation building – this needs to be confirmed with NGET. The EPC Contractor, who supplies and installs the Combined Cycle Gas Turbine Plant and 400kV circuits to the NGET substation, will allow for 400kV cable/GIL to the substation and either cable sealing ends or GIL bushings in the National Grid compound. This connection will be made by NGET. All equipment on the NGET side of this termination point is NGET's responsibility and will be checked by NGET and upgraded as necessary.

3.0 CONTRACTUAL AGREEMENTS

- 3.1 The Applicant has engaged with National Grid Electricity Transmission (NGET) over several months to determine the most appropriate means of transferring the current connection agreement to that for the Proposed Development. The ModAp process is the result of those discussions and was submitted to NGET on 24th April 2017.
- 3.2 An offer from NGET following the ModAp application is expected within 3 months of the application. The offer will include details of any costs to NGET of upgrading the 400kV substation as a result of the Combined Cycle Gas Turbine Plant's power import requirements and power export capability.
- 3.3 Following the offer the Applicant will then have a period in which to sign the new connection agreement with NGET.
- 3.4 The EPC Contractor, chosen by EPL, will enter into a contract to supply and install the Combined Cycle Gas Turbine Plant including the 400kV connection to NGET's 400kV substation as described above.

4.0 RESPONSIBILITIES FOR DESIGNING AND BUILDING THE GRID CONNECTION

- 4.1 The Applicant will be responsible for the design and construction of the Combined Cycle Gas Turbine Plant and its grid connection as far as the earth switch terminals in the compound just outside the NGET substation building. This will be done by the Applicant's EPC Contractor.
- 4.2 NGET will be responsible for upgrading its substation as a result of the new Combined Cycle Gas Turbine Plant design. NGET will also make the actual connection of the Applicant's 400kV circuits to NGET's substation.

Grid Cables Installation

- 4.3 It is envisaged that the installation of the proposed technology will be through the use of an 'open-cut' method, whereby a trench will be excavated and the cables/GIL laid below ground. This method will be applied where there is sufficient space and the work area is relatively flat. These works will generally be as follows:
- fence off works area;
 - strip and store topsoil;
 - excavate trench and store subsoil;
 - lay cables/GIL in the trench; and
 - backfill subsoil, reinstate topsoil and reinstate to original state.
- 4.4 The installation of the cables/GIL is all on land owned freehold by the Applicant.

Grid Connection Operation and Maintenance

- 4.5 The Applicant will be responsible for the operation and maintenance of the grid connection, for the scope of cables as supplied and installed as far as the termination point, over the life of the Proposed Development.
- 4.6 NGET will be responsible for the operation and maintenance of their equipment on the existing 400kV substation side of the termination point.

5.0 ACQUISITION OF LAND AND RIGHTS

- 5.1 The Applicant owns the freehold interest in all of the land on which the 400kV grid connection will be made, up to the sub-station. The Applicant also owns the freehold of the land on which the sub-station is situated, subject to a lease to NGET. The connection agreement with NGET will provide the necessary rights for the Applicant to connect to the sub-station.
- 5.2 Work Number 3 in Schedule 1 to the DCO covers the construction and operation of the grid connection.

6.0 CONSENT FOR THE GRID CONNECTION WORKS

- 6.1 The grid connection forms part of the works included within the DCO Application, and therefore no separate planning permission is required.
- 6.2 Article 6 of the draft DCO provides that the Applicant has the benefit of the provisions of the DCO, and also that NGET has the benefit of the provisions of the DCO in relation to Work No. 3B (the connection so far as it is within the sub-station). This allows NGET to construct, operate and maintain that part of the grid connection works.

7.0 CONCLUSIONS

- 7.1 This Grid Connection Statement has been prepared to satisfy the requirements of APFP Regulation 6(1)(a)(i) and to demonstrate that there is no reason why a grid connection would not be possible for the Proposed Development, in accordance with National Policy Statement (NPS) EN-1.
- 7.2 The Statement has demonstrated that the proposed grid connection and associated underground cables included within the Application (and assessed as part of the associated Environmental Impact Assessment) are technically and environmentally feasible, that the necessary agreements are being secured through the ModAp process and Connection Agreement between the Applicant and NGET, and appropriate powers are included in the draft Order to facilitate the delivery of the grid connection and associated underground cables.