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West Burton C (Gas Fired Generating Station)

The West Burton C (Generating Station) Order

Land to the north of the West Burton B Power Station, Nottinghamshire

Grid Connection Statement

Applicant: EDF Energy (Thermal Generation) Limited
Date: April 2019

Grid Connection Statement – Contents

1. Executive Summary

1.1 EDF Energy (Thermal Generation) Limited (herein referred to as the Applicant) is seeking development consent for the construction, operation and maintenance of a gas-fired peaking plant of up to 299MW at the West Burton Power Station site near Gainsborough, Nottinghamshire. This Grid Connection Statement forms part of the application for a development consent.

1.2 It is proposed to connect the Proposed Development at the existing EDF Energy owned West Burton B 400KV switchyard and utilise the existing generation circuits from the switchyard to connect to the National Electricity Transmission System (NETS) at the West Burton 400KV Substation.

1.3 The Applicant has held discussions with National Grid Electricity Transmission (NGET) on connection requirements. A feasibility study was completed in April 2017, which concluded that no additional works at the connection site would be needed to accommodate the proposed connection based on the contracted generation and demand positions.

1.4 As the connection of WBC would be to an existing 400kV switchyard owned by the Applicant it is not believed that NGET will require protective provisions to be provided in the DCO.

1.5 A formal application for a grid connection will be made by the Applicant at a later date.

2. Introduction

2.1 EDF Energy (Thermal Generation) Limited (herein referred to as the Applicant or EDF Energy) is seeking a Development Consent Order (DCO) for the construction, operation and maintenance of a gas-fired peaking plant at the West Burton Power Station site capable of generating a gross electrical output of up to 299MW.

2.2 The Applicant owns and operates the two existing power stations at the West Burton Power Station site, West Burton A (WBA) and West Burton B (WBB), as well as the nearby Cottam Power Station.

2.3 This Grid Connection Statement forms part of the application for development consent submitted under section 37 of the Planning Act 2008 (The 2008 Act). The Statement has been prepared to comply with Regulation 6(1)(a)(i) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the Regulations 2009), which requires the Applicant to provide a statement of who would be responsible for designing and building the connection to the electricity grid.

2.4 Paragraph 4.9.1 of the Overarching Energy National Policy Statement for Energy (EN-1) states that it is for the Applicant to ensure that there would be necessary infrastructure and capacity in the transmission and distribution network to accommodate the electricity to be generated by a proposed new power plant.

2.5 The Proposed Development would comprise a gas-fired power station with gross electrical output capacity of up to 299MW and associated buildings, structures and plant defined in the draft DCO as Work No. 1 and shown on the Works Plans (**Application Document Ref. 3.2**) as Work No. 1: Sheet 1 of 10, including:

- Up to five OCGT units and associated generators, potentially housed within building(s), with stack(s), transformer(s), air inlet filter(s) and exhaust gas diffuser(s);
- associated switchgear and ancillary equipment; and
- auxiliary closed loop cooling equipment/systems.

2.6 Additionally, the gas fired power station within the Proposed Development may include:

- a banking compound comprising up to six transformers, overhead busbars, cable sealing ends and associated switchgear and ancillary equipment.

2.7 The Proposed Development would also include:

- a gas receiving area, gas treatment and control facilities, including if required, a compression station, generator and other auxiliary control cabinets (**Work No. 2**);
- electrical connection works (**Work No. 3)** comprising:
  - up to 400kV electrical cables and control system cables to and from the existing West Burton B switchyard **(Work No. 3A**); and
  - works within or adjacent to the existing West Burton B switchyard, including electrical cables, connections to busbars and upgraded or replacement equipment **(Work No. 3B**).
- auxiliary/ancillary buildings, structures and equipment (**Work No. 4**) comprising:
  - emergency diesel generator and associated fuel tank;
  - contained road tanker diesel unloading area;
  - workshop, store, control, administration and welfare building;
  - above ground raw water and fire water storage tanks and associated infrastructure;
  - an area of hardstanding for maintenance laydown and erection of temporary buildings associated with the commissioning, operation and maintenance of the OCGT unit(s);
  - pipework, pipe runs and pipe racks;
  - fire-fighting equipment, buildings and distribution pipework; and
  - other minor infrastructure and auxiliaries/services including chemical storage facilities.
- a new surface water drainage system comprising pond(s) and/or tank(s) or similar, including connection to an existing water drainage systems on the West Burton Power Station site (**Work No. 5**);
- gas supply pipeline connection works for the transport of natural gas to **Work No. 1** from an existing gas receiving facility within West Burton B including:
  - a high pressure steel pipeline (**Work No. 6A**) of up to 500mm (nominal bore) in diameter and up to 150m in length, which would be installed at ground level or underground; and
  - an extension to the existing West Burton B gas receiving facility (**Work No. 6B**) comprising:
    - an offtake connection;
    - above and below ground valves, flanges and pipework;

  - an above or below ground remotely operated valve;
  - an above or below ground remotely operated valve bypass;
  - an above or below ground pressurisation bridle;
  - instrumentation and electrical kiosks;
  - telemetry equipment kiosks and communications equipment;
- water supply and pipeline (**Work No. 7**) from the Proposed Development Site to an existing water supply within West Burton B;
- low voltage electrical, control, metering and other cables and associated switchgear and ancillary equipment and cabinets required to connect the Proposed Development with West Burton B (**Work No. 8**);
- a rail offloading area comprising an offloading area from the existing rail loop 'merry-go-round' that is present on the West Burton Power Station site (**Work No. 9**); and
- a Landscaping and Biodiversity Management and Enhancement Area (**Work No. 10**).

The Proposed Development Site

2.8 The Proposed Development Site (the 'Site') comprises land within the boundary of the existing West Burton Power Station Site near Gainsborough, Nottinghamshire. The land is within the ownership of the Applicant. The Site is centred on national grid reference 480275, 386241 (the middle of the Proposed Power Plant Site).

2.9 The Site encompasses an area of approximately 32.8 hectares (ha) of which approximately 16.3ha comprises the built development and construction laydown area, with a further approximately 16.5ha of land proposed for ecology and landscaping works. The proposed generating station itself would occupy an area of approximately 3.4ha.

The Purpose and Structure of this Document

2.10 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. This requires an applicant to provide a statement setting out who would be responsible for designing and building the proposed Grid Connection to the Proposed Development.

2.11 This Grid Connection Statement has, therefore, been prepared to satisfy those requirements and to demonstrate that there is no reason why a grid connection would not be possible.

2.12 Section 3 of this document describes the grid connection route and connection point. Section 4 confirms the contractual agreements that are in place, while Section 5 details the responsibilities for designing and building the grid connection. Section 6 relates to acquisition of rights. Section 7 deals with the consent required for the connection works and Section 8 sets out the conclusions.

3. The Proposed Grid Connection

3.1 The Applicant currently has a Bilateral Connection Agreement with National Grid Electricity Transmission (NGET) for West Burton Power Station, which comprises West Burton B combined cycle gas turbine (CCGT) and an enhanced frequency response battery system. The connection is to the National Grid owned West Burton 400KV substation.

3.2 The proposal is to connect the Proposed Development at the existing Applicant owned West Burton B 400KV switchyard and utilise the existing generation circuits from the switchyard to connect to the National Electricity Transmission System at the West Burton 400KV substation. An application would be made to NGET to connect West Burton C at a future date.

3.3 The Applicant has held discussions with NGET on the connection requirements. NGET completed a feasibility study covering WBC connected at the existing 400kV busbars of the West Burton B power station (WBBPS) and exporting power into the grid system through the two EDF Energy owned circuits connecting with West Burton 400kV substation in April 2017. It concluded that no additional works at the connection site would be needed to accommodate the proposed connection, based on the generation background at that time.

3.4 The 2017 study identified the need for wider transmission reinforcement works. NGET would take forward these works as part of their ongoing network option assessment activities.

3.5 The contracted generation background is dynamic and continues to vary on an ongoing basis. Changes to the contracted generation background may have the potential to trigger additional enabling works that were not identified in the 2017 feasibility study. The extent of enabling works, if any, can only be determined through further studies or an application for a grid connection. An application for a grid connection will be made by the Applicant at a later date and any offer made by NGET would reflect the then applicable generation background.

3.6 The Applicant will be responsible for the design and construction of the Proposed Development and its connection to the WBB switchyard. Export to the National Grid Electricity Transmission West Burton 400kV substation, herein referred to as WBA substation, is via two existing Applicant owned generation circuits.

Grid Connection Options

3.7 The Proposed Development will connect into the WBB switchyard owned by the Applicant. The final connection option to the switchyard has not yet been selected. However, the final option would be installed within the area's shown by the Works Plans (**Application Document Ref 3.2**), within the scope and parameters of the Application.

3.8 The Proposed Development would incorporate up to five Open Cycle Gas Turbines (OCGT). If more than one OCGT is installed a banking compound may be created within the development site. The electrical infrastructure would include transformers, overhead bus bars, cable sealing ends, associated switchgear and generating cables. These options are shown in the Indicative Site Layouts (**Application Document Ref 3.4**).

3.9 At this stage in the project development and design, a definitive route for the 400KV circuits from the power plant cannot be determined. However, the circuits would be installed within the construction corridor as shown in the Works Plans (**Application Document Ref 3.2**). This is to allow for final configuration of the power plant. Whichever technology is chosen, the circuits would be installed within the scope and parameters detailed in the Application.

4. Contractual Agreements

4.1 The necessary agreements for connection and capacity would be secured through agreements between the Applicant and National Grid.

4.2 A formal application for a grid connection will be made by the Applicant under the Connection and Use of System Code connection application process at a later date. The process requires National Grid to make a formal connection offer within three months. The offer remains open for acceptance for three months after issue.

5. Responsibilities for Designing and Building the Grid Connection

5.1 The Applicant will be responsible for the design and construction of the Proposed Development and its grid connection to the Applicant's owned assets.

5.2 NGET will be responsible for reviewing and approving the design and for carrying out any modifications required to the power protection circuits and interlocks within the WBA 400KV Substation GIS extension building on NG owned assets.

Grid Cables Installation

5.3 Connection is via the existing Applicant owned 400KV generation circuits between the WBB switchyard and WBA substation.

Grid Connection Operation and Maintenance

5.4 The Applicant would be responsible for the operation and maintenance of the grid connections as far as the termination point, over the life of the Proposed Development.

5.5 NGET would be responsible for the operation and maintenance of their equipment on the existing WBA 400KV substation side of the termination point.

6. Acquisition of Land and Rights

6.1 The Applicant owns the freehold interest in the land on which the 400kV grid connection would be made up to the substation. The freehold land on which the substation is situated is also owned by the Applicant, subject to a lease to NGET. The connection agreement with NGET would provide the necessary rights for the Applicant to connect to the substation.

6.2 **Work No. 3** in Schedule 1 of the draft DCO (**Application Document Ref. 2.1**) covers the electrical connection works for the construction and operation of the grid connection.

7. Consent for the Connection Works

7.1 The grid connection forms part of the works included within this application for development consent. Therefore, no separate planning permission would be required.

7.2 Article 6 of the draft DCO (**Application Document Ref. 2.1**) provides that the Applicant has the benefit of the provisions of the DCO, and also that NGET would have the benefit of the provisions of the DCO in relation to **Work No. 3A and 3B**.

8. Conclusions

8.1 This Grid Connection Statement has been prepared to satisfy the requirements of Regulations 2009 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.

8.2 The Statement has demonstrated that the proposed grid connection and associated cables included within the Application, and assessed as part of the associated Environmental Impact Assessment, are technically feasible. It also identifies that appropriate powers are included in the draft DCO (**Application Document Ref. 2.1**) to facilitate the delivery of the grid connection and associated cables for the proposed development.