West Burton Solar Project

Grid Connection Statement

Prepared by: Island Green Power
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West Burton
SOLAR PROJECT

Contents

Issue Sheet

Report Prepared for: West Burton Solar Project Ltd.
DCO Submission

Grid Connection Statement

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1 Introduction

1.1 Background

1.1.1 West Burton Solar Project Limited (the "Applicant") have prepared this Grid Connection Statement (the "Statement") as part of an application for a Development Consent Order (DCO) to construct, operate, maintain and decommission the West Burton Solar Project (the "Scheme").

1.1.2 The Scheme comprises a number of land parcels (the 'Site' or 'Sites') described as West Burton 1, 2, and 3 for the solar arrays, grid connection infrastructure and energy storage; and the Cable Route Corridors. The Sites are located between approximately 7.4km to the south and up to 14.6km southeast of Gainsborough. See the Location Plan **[EN010132/APP/WB2.1]** for the site locations.

1.1.3 The Scheme is described in full in Chapter 4 of the Environmental Statement (ES) (Scheme Description) **[EN010132/APP/WB6.2.4]**, which supports the application.

1.1.4 As each of the three Sites have a generating capacity that exceeds 50 megawatts (MW), the Scheme is defined under the Planning Act 2008 as a Nationally Significant Infrastructure Project (NSIP) and will therefore require a DCO from the Secretary of State. This Statement has been prepared by the Applicant to support the DCO application and should be read alongside all other documents submitted by the Applicant.

1.1.5 The Statement confirms who will be responsible for designing and building the grid connection infrastructure and cable routes for the connection to the electricity grid.

1.1.6 The Scheme will have an export and import connection to the National Electricity Transmission System (NETS). The Point of Connection (PoC) will be located at the existing West Burton 400kV National Grid substation within the site of West Burton Power Station, currently owned by EDF.

1.1.7 The Scheme is being developed by the Applicant. The Applicant is part of Island Green Power Limited (IGP), who is a leading international developer of renewable energy projects, established in 2013.

1.2 Statement Purpose

1.2.1 This Statement is to accompany the suite of documents submitted by the Applicant pursuant to Section 55 of the Planning Act 2008 and Regulations 5 and 6 of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations).

1.2.2 This statement has been prepared in accordance with Regulation 6(1)(a)(i) of the APFP Regulations, which requires an applicant for a DCO in respect of an onshore generation station to provide a statement of who will be responsible for designing and building the connection of the electricity grid.

1.2.3 Overarching National Policy Statement for Energy (NPS EN-1) paragraph 4.9.1 states that:

In the market system, it is for the applicant to ensure that there will be necessary infrastructure and capacity within an existing or planned transmission or distribution network to accommodate the electricity generated. The applicant will liaise with National Grid who own and manage the transmission network in England and Wales or the relevant regional Distribution Network Operator (DNO) to secure a grid connection. It may be the case that the applicant has not received or accepted a formal offer of a grid connection from the relevant network operator at the time of the application, although it is likely to have applied for one and discussed it with them. This is a commercial risk the applicant may wish to take for a variety of reasons, although the [Secretary of State] will want to be satisfied that there is no obvious reason why a grid connection would not be possible.

1.2.4 Paragraph 4.9.2 of NPS EN-1 states that:

The Government … envisages that wherever possible, applications for new generating stations and related infrastructure should be contained in a single application to the [Secretary of State] or in separate applications submitted in tandem which have been prepared in an integrated way.

1.2.5 This Statement details the status of the grid connection offer and provides confirmation that the grid connection forms part of the Scheme and, as such, constitutes a single application to the Secretary of State.

1.3 Work Numbers

1.3.1 A "Work No." has been assigned to different elements of the Scheme for which consent is being sought, and defined in Schedule 1 of the Draft DCO **[EN010132/APP/WB3.1]**. The location of each Work number is defined on the Works Plans **[EN010132/APP/WB2.3]** which should be consulted for further detail.

1.3.2 The Work Numbers relevant to this Statement are as follows:

- Work No.3 — work in connection with onsite substations (at each Site);
- Work No.4 — works to the National Grid substation to facilitate connection of the authorised development to the National Grid; and
- Work Nos.5A and 5B — works to lay electrical cables, means of access, and temporary construction laydown areas for the electrical cables including high voltage electrical cables connecting Work No.3C to Work No. 4 and Work Nos.3A, and 3B to Work No. 3C.

2 Grid Connection Agreement

2.1.1 The Applicant submitted a grid application to National Grid Electricity System Operator Limited (NGESO), the system operator of NETS, in April 2019 to connect the Scheme to the NETS at West Burton 400kV substation owned by National Grid Electricity Transmission (NGET).

2.1.2 NGESO then worked with NGET to produce a connection offer which was received by the Applicant in August 2019 (NGESO reference: A/LSPL192904-EN(0)).

2.1.3 The connection offer was accepted in the form of a Bilateral Connection Agreement (BCA) between the Applicant and NGESO, allowing for a Transmission Entry Capacity (TEC) of 480MW export to and 20MW import from the NETS. This was entered into in November 2019. The acceptance of the connection offer demonstrates that a connection at the Point of Connection is technically and financially viable.

2.1.4 As a requirement of the acceptance of the grid connection offer the Applicant must also agree to adhere to the Connection and Use of System Code (CUSC), the contractual framework in which the Applicant can connect and use the NETS. A CUSC Accession Agreement was also entered into in November 2019.

2.1.5 The Grid Connection Agreement allows the Applicant to export the electricity produced at the three Sites, West Burton 1, 2, and 3, not to exceed 480MW. It also allows for the import of up to 20MW of electrical energy to be stored in an Energy Storage Facility (for the purposes of the Application, this is assumed to employ battery technology and therefore referred to as a 'Battery Energy Storage System' or 'BESS' throughout this Application), to be exported at a different time, back to the NETS.

3 Elements of the Grid Connection

3.1 Introduction

3.1.1 The Scheme will consist of three Sites where the solar arrays will be constructed. There will also be an Energy Storage System or BESS constructed on the West Burton 3 site. The electricity produced on each Site and stored within the BESS, will need to pass via the West Burton 3 substation in order to transform the voltage up to 400kV before being exported to the NETS.

3.1.2 The following Works are needed for the grid connection of the Scheme:

- Work No.3 — works in connection with onsite substations;
- Work No.4 — works to the existing Cottam Power Station substation to facilitate connection to the National Grid; and
- Work No. 5 — works to lay electrical cables, means of access, and temporary construction laydown areas for the electrical cables to transfer electricity generated, to the grid (to be laid within the Cable Route Corridors as identified on the Works Plans within Work Nos 5A and 5B).

3.1.3 The West Burton 1 and West Burton 2 Cable Route Corridors will accommodate circuits running to West Burton 3 substation.

3.1.4 The total high voltage Cable Route Corridor distance from the West Burton 1 substation to West Burton Power Station (National Grid substation) is approximately 21.3km. Some of this route will contain single circuits, and some will have two circuits, dependent upon location.

3.1.5 A detailed description of the elements that make up the Cable Route Corridor and substations can be found within Chapter 4 of the Environmental Statement (ES), Scheme Description **[EN010132/APP/WB6.2.4]**.

3.2 West Burton 1 Cable Route (Work No. 5A)

3.2.1 The electricity generated at West Burton 1 is collected by a substation on site and then exported to the West Burton 3 substation via a 132kV circuit of underground cables totalling approximately 11.3 km.

3.3 West Burton 1 Substation (Work No. 3A)

3.3.1 The West Burton 1 substation will transform all of the electricity produced at the West Burton 1 Site from 33kV up to 132kV using high voltage transformers.

3.4 West Burton 2 Cable Route (Work No. 5A)

3.4.1 The electricity generated at West Burton 2 is collected by a 33kV/132kV substation on site and then exported to the West Burton 3 substation via two 132kV circuits of underground cables totalling approximately 5.6km.

3.5 West Burton 2 Substation (Work No. 3B)

3.5.1 The West Burton 2 substation will transform all of the electricity produced at the West Burton 2 Site from 33kV up to 132kV using high voltage transformers.

3.6 West Burton 3 Cable Route (Work No. 5A and 5B)

3.6.1 A single 400kV circuit, consisting of three cables will run underground from the West Burton 3 substation to the West Burton 400kV Gas Insulated Switchgear (GIS) substation extension part of the NETS, at West Burton Power Station. This cable route will be approximately 9.9km long.

3.6.2 The circuit will run south of Marton. Horizonal Directional Drilling (HDD) techniques will be used to cross the River Trent, where the cable will turn north towards West Burton Power station, running west of Littleborough and then east of Sturton le Steeple. Here it will then run to the West Burton 400kV GIS substation extension.

3.7 West Burton 3 Substation (Work No. 3C)

3.7.1 The West Burton 3 400kV substation will collate all electricity produced from West Burton 1 and 2 which will enter the West Burton 3 substation at 132kV, along with the electricity produced and stored at West Burton 3, which is at a voltage of 33kV. It will then be converted using high voltage transformers to a single 400kV supply that can be exported to the NETS.

3.8 West Burton National Grid Substation Works

3.8.1 Works will be required within the existing 400kV GIS extension building attached to the southwest of the main indoor West Burton Air Insulated Switchgear (AIS) substation, to create a new generation bay enabling the Scheme to connect to the grid. The works required are anticipated to consist of the provision of:

- Extending Main Busbar 4 and reserve busbar ¾ gas zones to allow for the connection of a new Island Green Power GIS substation bay comprising the below;
- A 400kV 3phase 4000A circuit breaker for control and protection of the outgoing circuit serving the new scheme;
- A 3phase set of current transformers for protection of the new outgoing 400kV feeder circuit and the overlap with the National Grid system;
- A 3phase High Accuracy Metering Current and Voltage Transformer assembly for commercial metering of the connection;
- A 3phase 400kV Line disconnector/earth switch for isolation and earthing of the outgoing 400KV feeder circuit;
- A 3phase set of 400kV high voltage cable sealing ends and cables connecting the National Grid site with the Scheme's site at West Burton 3; and
- A 3phase Power Quality ready Capacitor Voltage transformer.

3.8.2 Also required is protection, control and ancillary apparatus for the circuit to be housed within a stand-alone building sized approximately 6m x 3 m, comprising duplicate feeder protection systems, commercial metering systems, National Grid owned protection and control equipment and User Remote Control and data acquisition apparatus.

4 Designing and Building of the Grid Connection

4.1 Responsibility of the Applicant

4.1.1 The Applicant has obtained expert advice from Omnia Projects to produce a bespoke electrical design for the project. This has included electrical front end engineering design for each Site, and substation equipment and compound design. The Applicant also commissioned JSM Group to provide civil engineering input regarding the high voltage grid connection route.

4.1.2 Whilst discussions are ongoing with NGET, the Applicant and its appointed contractors and consultants will be responsible for the design and construction of the following sections of the grid connection:

- On-site substations at West Burton 1, 2, and 3 (Work No. 3);
- High voltage grid connection route (Work No. 5); and
- Installation of bay equipment at the POC.

4.2 Responsibilities of National Grid Electricity Transmission

4.2.1 Whilst discussions are ongoing, NGET will be responsible for the following sections of the grid connection, for design and construction, (which will be owned and operated by NGET):

- Facilitate the installation of the 400kV GIS works to the NG West Burton Power Station substation spare bay (Work No. 4) (as described above).

5 Land Rights

5.1 Substations and Energy Storage Sites

5.1.1 The Applicant has entered into a voluntary Option to Lease Agreement with the respective landowners of West Burton 1, 2, and 3.

5.2 Cable Corridor Route

5.2.1 All freehold owners and tenants for the proposed cable route that will accommodate the various grid connection circuits, have been contacted and an indicative cable route discussed. Heads of Terms have been issued to each of these and the Applicant will continue to negotiate with each of the landowners.

5.2.2 The Applicant is pursuing voluntarily agreements with landowners along the cable corridor, but will also be seeking compulsory acquisition and temporary use powers through the DCO (see draft DCO **[EN010132/APP/WB3.1]**) to enable the Grid Connection to be delivered without impediment.

5.3 West Burton National Grid Substation

5.3.1 It is understood that NGET already have the necessary land rights to undertake works to the new generation bay. The Applicant has contacted NGET to seek confirmation of this position, however, NGET's response is outstanding.

6 Consenting of the Grid Connection Works

6.1.1 The Applicant is seeking to secure the consents for the Grid Connection Works via the DCO application through Works Nos. 3, 4 and 5 as set out in Schedule 1 of the draft DCO **[EN010132/APP/WB3.1]**. If the same terms relating to these Works Nos. are granted, development consent for the Grid Connection will have been secured.

7 Conclusion

7.1.1 The Applicant, West Burton Solar Project Limited is making an application for a DCO for the Scheme, of which the Grid Connection Works form part thereof. Therefore, this Statement has been submitted as per the requirement stated in Regulation 6(1)(a)(i) of the APFP Regulations, stating who will be responsible for designing and building the connection to the electricity grid.

7.1.2 This Statement confirms the above to the Secretary of State, namely:

- The Applicant has received a valid grid connection offer from NGESO to connect the Scheme to the NETS at West Burton substation;
- The Applicant has accepted this grid offer by entering into a BCA with the NGESO. This demonstrates that the connection is technically and financially viable;
- From West Burton 1 one cable circuit at 132kV will run directly to West Burton 3 400kV substation, passing through the West Burton 2 site;
- From West Burton 2 one cable circuit at 132kV will run directly to West Burton 3 400kV substation;
- A 33/132/400 kV substation located on West Burton 3 will collate electricity generated from all of West Burton 1, 2, and 3 and energy stored at West Burton 3;
- A single 400kV circuit will then run from West Burton 3 to the West Burton substation;
- A new 400kV GIS bay will be created to allow the scheme to connect to the NETS;
- The Applicant will be responsible for designing and building all of the above elements of the grid connection. The Applicant will also operate and maintain these elements for the lifetime of the Scheme. NGET will be responsible for designing and carrying out the works required for the population of the new bay to allow for the Scheme's connection, and ongoing maintenance of the bay thereafter for the lifetime of the Scheme; and
- By the time construction starts the Applicant will have obtained all the necessary land rights for the Grid Connection, whether via the preferred method of voluntary agreement or by use of compulsory acquisition and temporary use powers in the DCO.

7.1.3 This statement is to be read alongside all other documents submitted by the Applicant relating to the DCO application. As set out in this statement and the draft DCO, the grid connection works form part of the Scheme for which development consent is being sought.