Proposed Solar PV Development

Byers Gill Solar
EN010139

7.5 Grid Connection Statement

Planning Act 2008

APFP Regulation 6(1)(a)(i)

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

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1. Introduction

1.1. Purpose of this document

1.1.1. This Grid Connection Statement forms part of an application submitted by RWE (the Applicant) for a Development Consent Order (DCO) under section 37 of the Planning Act 2008. (the Act). The application seeks development consent for Byers Gill Solar (the Proposed Development), a proposed solar farm which will generate renewable energy for exporting to the National Grid.

1.1.2. The Proposed Development comprises the construction, operation, maintenance and decommissioning of solar photovoltaic (PV) panels, on-site Battery Energy Storage Systems (BESS), associated infrastructure as well as underground cable connections between panel areas and to connect to the existing National Grid Substation at Norton.

1.1.3. Further details on the Proposed Development are contained in ES Chapter 2 'The Proposed Development' (Document Reference 6.2.2).

1.1.4. The Proposed Development is defined under the Act as a Nationally Significant Infrastructure Project (NSIP) as it comprises a generating station in England with a capacity exceeding 50 megawatts (MW). It therefore requires a DCO from the Secretary of State for Energy Security and Net Zero (SoS). This document has been prepared and should be read in conjunction with the other documents submitted with the application.

1.1.5. This Grid Connection Statement is submitted pursuant to Section 55 of the Act and Regulations 5 and 6 of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) (the APFP Regulations). In particular, Regulation 6(1)(a)(i) of the APFP Regulations requires an applicant for a DCO in respect of onshore generating stations to provide a statement of who will be responsible for designing and constructing the connection to the electricity grid.

1.1.6. This statement confirms that a connection to the existing National Grid Substation at Norton will be provided via 132kV underground cables from the Byers Gill Solar farm. It explains the key elements of the Proposed Development up to the boundary of the existing National Grid Substation at Norton and addresses the works which are to be carried out within the boundary of the Norton Substation. This statement further confirms that all works necessary to connect the Proposed Development to the National Electricity Transmission System (NETS) will be authorised by the DCO. National Grid Energy Transmission owns the freehold land within the substation and the operational land for Northern Power Grid is leased from NGET.

2. Grid Connection Agreement

2.1.1. The Proposed Development will supply electricity to the National Electricity Transmission System (NETS). National Grid Electricity System Operator Limited (NGESO) is the system operator for the complete NETS and National Grid Electricity Transmission (NGET) is the Transmission Owner for England and Wales pursuant to a transmission license issued under the Electricity Act 1989. NGET is the freeholder owner of (and is responsible for operating) the Norton Substation and Northern Power Grid is the District Network Operator (DNO).

2.1.2. The Applicant received a grid connection offer from Northern Power Grid on 12 April 2021, offering connection to the existing 132kV Norton Substation. That offer was accepted by the Applicant on 10 May 2021. A further variation to the offer was accepted on 22 June 2022 (the "Connection Agreement").

2.1.3. Therefore, the Applicant confirms that the output of the Proposed Development will be exported to the NETS via the Norton Substation and that the Norton Substation has available capacity for the Proposed Development.

3. The Grid Connection

3.1. Overview

3.1.1. Electricity generated by the Proposed Development will be exported to the NETS via the existing 275/132kV Norton Substation. The Norton Substation is located approximately 10km away from the proposed on-site substation and therefore the Proposed Development includes works to install underground 132kV cabling to connect the onsite substation to the Norton Substation.

3.1.2. The key elements forming part of the Proposed Development which are necessary to connect it to the NETS are listed below and are be identified on the Works Plans (Document Reference 2.2):

- Panel Areas – Work No. 1
- Battery Energy Storage System (BESS) – Work No. 2
- Underground 33kV cabling to connect the Panel Areas and BESS to the onsite substation, together with underground 132kV cabling – Work No. 3
- Onsite substation – Work No. 4
- Underground 132kV cabling to connect the onsite substation to the Norton Substation – Work No. 5
- Construction of electrical infrastructure within the Norton Substation – Work No. 6

3.1.3. These works are included in Schedule 1 of the draft DCO (Document Reference 3.1) and are described in detail within Environmental Statement (ES) Chapter 2 The Proposed Development (Document Reference 6.2.2).

3.1.4. In summary, the Applicant will be responsible for designing and building as part of the Proposed Development each element of the electrical connection up to the onsite substation and work together with Northern Power Grid on their design of the on-site substation. The 132kV cable to connect the on-site substation to the Norton Substation will be constructed by RWE.

3.1.5. Following completion, the aforementioned electrical infrastructure would be adopted by the DNO in accordance with the Grid Connection Agreement.

Panel Areas (Work No. 1)

3.1.6. The solar panels will generate electrical power by using a solar PV module to convert sun light into direct current (DC) electricity.

3.1.7. Work No. 1 will therefore comprise the ground mounted solar photovoltaic generation station consisting of solar PV modules and associated mounting structures and on-site supporting equipment (or the balance of solar plant). Work No. 1 will be spread across six panel areas.

Battery Energy Storage System (Work No. 2)

3.1.8. The BESS is likely to consist of lithium-ion batteries and will allow energy to be stored on site to ensure that there is an equal distribution of electricity across the NETS, providing a balance in services where surplus electricity is produced.

3.1.9. Work No. 2 will therefore comprise the BESS units and associated infrastructure, such as auxiliary transformers and power conversion system units including inverters, switch gear, transformers and ancillary equipment.

Underground Cabling to connect the Panel Areas and BESS to the Onsite Substation (Work No. 3)

3.1.10. Work No. 3 will comprise the 33kV underground electrical cables to connect the Panel Areas (Work No. 1) and the BESS (Work No. 2) to the on-site substation (Work No. 4) together with various associated works. Work No. 3 also includes a portion of the underground 132kV electrical cables connecting the on-site substation (Work No. 4) to the Norton Substation (Work No. 6).

Onsite Substation (Work No. 4)

3.1.11. An onsite substation will be required to connect the Proposed Development to distribution and transmission networks by converting low voltages from electricity generation to high voltages, or vice versa, using power transformers.

3.1.12. Work No. 4 will therefore comprise the onsite substation and various associated works.

Underground Cabling connecting the Onsite Substation to the Norton Substation (Work No. 5)

3.1.13. Work No. 5 will comprise the remaining portion of the 132kV underground electrical cables connecting the onsite substation (Work No. 4) to the NGET and Northern Power Grid Substation at Norton (Work No. 6) together with various associated works.

Construction of electrical infrastructure within the Norton Substation (Work no. 6)

3.1.14. To enable the connection between the Proposed Development and the Norton Substation, a new 132kV circuit breaker and associated switchgear equipment will be installed at the Norton Substation by the DNO. Under the terms of the Connection Agreement, the DNO will also be responsible for designing and building the gas insulated switchgear and auxiliary equipment. These works comprise Work No.6 and form part of the Proposed Development .

3.1.15. The Applicant is aware that NGET separately proposes to carry out works to upgrade other Grid Supply Points, including the Norton Substation, Darlington North

substation, and Leeming Bar substation. The Proposed Development does not depend on or require these upgrade works to be carried out in order to export electricity to the NETS via the Norton Substation.

3.1.16. Further information on the electrical connection has been considered within ES Chapter 2 The Proposed Development (Reference: 6.2.2).

4. Acquisition of Land Rights

4.1. Panel Areas, BESS and Onsite Substation

4.1.1. The Applicant has successfully negotiated voluntary option agreements for leasehold interests to allow for the construction, operation and decommissioning of the Proposed Development within all panel areas.

4.2. Cable Route Options

4.2.1. The Proposed Development includes provision for two alternative (on-road and off-road) underground 132kV cable routes to connect the Proposed Development to the NETS via Norton Substation. These remain under consideration by the Applicant and the final cable route (on-road or off-road) will be confirmed following the grant of the DCO.

Off-road Option

4.2.2. Where the 132kV cable is outside of the Panel Areas, the preference is to use an off-road route. Negotiations for the purchase of land, rights and interests are ongoing with relevant landowners. As set out in the Statement of Reasons (Document Reference: 4.1), freehold owners of the proposed cable route have received Heads of Terms and it is hoped that agreements will be reached voluntarily in due course.

4.2.3. Where voluntary agreement has not so far been possible, it is necessary for the Applicant to seek compulsory acquisition powers to secure such land, rights and interests. This is to ensure that any third-party interest or encumbrances affecting such land, rights and interests may be acquired, overridden or extinguished pursuant to the draft DCO and that the Proposed Development can therefore be constructed, operated and maintained.

On-road Option

4.2.4. On-road routes for 132kV cables are also included in the Order Limits to ensure the Proposed Development is deliverable should it not be possible to agree the route with landowners and if compulsory acquisition powers are not granted by the SoS.

4.3. Norton Substation

4.3.1. The Norton Substation site is owned by NGET as the freeholder. As DNO, Northern Power Grid has a lease for its operational land within Norton Substation and can carry out works under its permitted development powers .

5. Delivery of Works

5.1. Panel Areas (Work No. 1) and Battery Energy Storage System (Work No. 2)

5.1.1. The Applicant and its appointed contractors will be responsible for designing and constructing the Panel Areas (Work No. 1) and the BESS (Work No. 2) and the associated works.

5.2. Underground Cabling to connect the Panel Areas and BESS to the Onsite Substation (Work No. 3)

5.2.1. Responsibility for carry out Work No. 3 in terms of 33kV cabling will be carried out and owned by the Applicant.

5.2.2. The Applicant and its appointed contractors will be responsible for designing and constructing the underground 33kV cabling to connect the Panel Areas (Work No. 1) and the BESS (Work No. 2) to the on-site substation (Work No. 4) together with the associated works.

5.2.3. Under the terms of the Grid Connection Agreement, the Applicant will be responsible for designing and constructing the portion of the underground 132kV electrical cables connecting the on-site substation (Work No. 4) to the Norton Substation (Work No. 6). These will then be adopted by the DNO.

5.3. Onsite Substation (Work No. 4)

5.3.1. Under the terms of the Grid Connection Agreement, the DNO will be responsible for designing and constructing any works to the onsite substation.

5.4. Underground Cabling connecting the Onsite Substation to the Norton Substation (Work No. 5)

5.4.1. Under the terms of the Grid Connection Agreement, the Applicant will be responsible for designing and constructing the underground 132kV cabling to connect the Onsite Substation (Work No. 4) to the Norton Substation (Work No. 6). This will be adopted by the DNO.

5.5. Construction of electrical infrastructure within the Norton Substation (Work no. 6)

5.5.1. Under the terms of the Connection Agreement, the DNO will be responsible for designing and installing the 132kV circuit breaker and associated switchgear equipment, and auxiliary equipment within the Norton Substation. The 132kV cable within the Norton Substation may be constructed by the Applicant or the DNO, and it will be adopted by the DNO.

5.5.2. The Applicant confirms that the Northern Power Grid has all necessary rights to carry out the work comprising Work No. 6 and the additional works (described above) to complete the connection of the Proposed Development to the NETS.

6. Conclusion

6.1.1. The Applicant is required to submit a statement pursuant to Regulation 6(1)(a)(i) of the APFP Regulations, stating who will be responsible for designing and building the connection to the electricity grid.

6.1.2. It is considered that this Grid Connection Statement provides confirmation to the Secretary of State of the requirement above, namely:

- The Applicant has received a grid connection offer from Northern Power Grid as the DNO to connect the Proposed Development to the NETS via the existing Norton Substation and that offer has been accepted.
- All necessary works to complete the connection of the Byers Gill Solar to the NETS via Norton Substation and enable the export of electricity generated and stored by the Proposed Development will be authorised by the DCO as part of the Proposed Development.
- A connection to the Norton Substation will be provided via a 132kv underground cable from the onsite substation within the Proposed Development. Two alternative cable routes (on-road vs. off-road) are being considered and the final route will be confirmed following grant of the DCO.
- The Applicant has secured voluntary option agreements for leasehold interests to allow for the construction, operation and decommissioning of the panel areas, BESS and onsite substation. NGET is the freeholder owner of the Norton Substation and has all necessary rights to carry out the relevant works.
- Landowner negotiations are ongoing to secure the necessary land rights and interests for the off-road cable route option by voluntary agreement. In the event these negotiations are unsuccessful, the Applicant is seeking compulsory acquisition powers over the necessary land and, if the SoS is not minded to grant compulsory acquisition powers, the Applicant has included the on-road cable route option to ensure the Proposed Development is deliverable in any case.
- The Applicant will be responsible for delivering the panel areas, BESS and underground 33kV cabling to connect these components to the onsite substation. Under the terms of the Grid Connection Agreement, the Applicant will be responsible for delivering the onsite substation and the underground 132kV cabling to connect the onsite substation to the Norton Substation. These would be adopted by the DNO. Electrical works within Norton Substation will be delivered by the DNO.