Peartree Hill Solar Farm

Grid Connection Statement

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms

and Procedure) Regulations 2009 –

Regulation 5(2)(q)

Application Document Ref: EN010157/APP/7.1

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Contents

Acronyms

Acronym	Description
APFP	Applications: Prescribed Forms and Procedure
BESS	Battery Energy Storage System
DC	Direct current
DCO	Development Consent Order
DNO	Distribution Network Operator
Draft DCO	Draft Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
kV	Kilovolts
MW	Megawatts
NETS	National Electricity Transmission System
NGESO	National Grid Electricity System Operator Limited
NGET	National Grid Energy Transmission
NSIP	Nationally Significant Infrastructure Project
PA 2008	Planning Act 2008
PV	Photo voltaic
SoS	Secretary of State for the Department for Energy Security and Net Zero

Glossary

Term or Abbreviation	Definition
The Applicant	RWE Renewables UK Solar & Storage Ltd.
DCO Application	Development Consent Order application.
Battery Energy Storage System (BESS)	BESS is designed to provide peak generation and grid balancing services to the electricity grid. It will do this primarily by allowing excess electricity generated from the solar PV panels to be stored in batteries and dispatched when required. It may also import surplus energy from the electricity grid
Development Consent Order (DCO)	An order granted by the Secretary of State permitting the development of a Nationally Significant Infrastructure Project. DCO applications are made to the Secretary of State via the Planning Inspectorate.
Environmental Impact Assessment (EIA)	A statutory process by which information about environmental effects of a proposed development is collected, assessed and used to inform decision making. The EIA for the Proposed Development has been undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 'EIA Regulations').
Environmental Statement (ES)	A report forming part of the DCO application, it will report the process and final outcomes of the EIA and explain the likely significant effects of the Proposed Development on the environment once mitigation measures have been taken into account.
Grid connection	The export and import of electricity from the Proposed Development to or from the National Grid Creyke Beck Substation.
Kilometre (km)	A metric unit of length equal to 1,000 metres.
Megawatt (MW)	Unit of power equal to one million watts.
Nationally Significant Infrastructure Projects (NSIP)	NSIPs are large scale developments such as certain new harbours, power generating stations (including solar farms), highways developments and electricity transmission lines, which require a development consent under procedures governed by the Planning Act 2008.
On-site substation	The Proposed Development includes two on-site substations, which would receive the electricity from the solar PV modules and hybrid packs and step up the

Term or Abbreviation	Definition
	voltage from 33 kV to 132 kV ready to be exported to the National Grid Creyke Beck Substation via 132 kV underground cable. The substations would house electrical equipment such as transformers, switchgear and metering equipment. The two on-site substations are labelled Project Substation West and Project Substation East.
Planning Act 2008 (PA 2008)	Primary legislation outlining the consent regime for major infrastructure projects in the fields of energy, transport, water, wastewater, and waste.
Secretary of State (SoS)	Secretary of State for Energy Security and Net Zero.
Solar photovoltaic (PV) modules	Panels comprised of photovoltaic cells beneath a layer of toughened glass that convert sunlight into electrical current.
Transformer	A static piece of apparatus with two or more windings which, by electromagnetic induction, transforms a system of alternating voltage and current into another system of voltage and current usually of different values and at the same frequency for the purpose of transmitting electrical power.
Work Number	The Proposed Development is described in Schedule 1 of the Draft Development Consent Order, where the “authorised development” is split into work packages, with each one assigned a Work Number. Each Work Number corresponds to a specific aspect of the development, e.g. on-site substations, Battery Energy Storage System, construction compounds.

1 Introduction

1.1 Purpose of this document

1.1.1 This Grid Connection Statement has been prepared on behalf of by RWE Renewables UK Solar and Storage Ltd (the 'Applicant') in support of an application for a Development Consent Order (DCO) (the 'DCO Application') made to the Secretary of State for the Department for Energy Security and Net Zero (SoS), pursuant to section 37 of the Planning Act 2008 (PA 2008) **[Ref. 1]**.

1.1.2 The DCO Application is for a Nationally Significant Infrastructure Project (NSIP) for the installation of a solar photovoltaic (PV) array electricity generating facility, Battery Energy Storage System (BESS) and associated infrastructure (the 'Proposed Development') which would allow for the generation and export of electricity to the National Grid.

1.1.3 The Proposed Development is made up of five Land Areas (B-F, there is no Land Area A), interconnecting underground cables between Land Areas, 132 kilovolts (kV) underground cable route options to National Grid Creyke Beck Substation

1.1.4 Further details on the Proposed Development are contained in **Environmental Statement (ES) Volume 1, Chapter 3:Proposed Development Description [EN010157/APP/6.1]**.

1.1.5 The Proposed Development is defined under Sections 14(1)(a), 15(1) and 15(2) of the PA 2008 **[Ref. 1]** as a NSIP as it comprises an onshore generating station in England with a capacity exceeding 50 megawatts (MW). It therefore requires a DCO from the SoS. This document has been prepared and should be read in conjunction with the other documents submitted with the application.

1.1.6 This Grid Connection Statement is submitted pursuant to Section 55 of the PA 2008 **[Ref.1]** and Regulations 5 and 6 of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) (the APFP Regulations) **[Ref. 2]**. 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.

1.1.7 This statement confirms that a connection to the existing National Grid Substation at Creyke Beck will be provided via 132 kV underground cables from the Proposed Development.

1.1.8 It explains the key elements of the Proposed Development up to the boundary of the existing National Grid Substation at Creyke Beck and addresses the works which are to be carried out within the boundary of the National Grid Creyke Beck 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.

1.1.9 National Grid Energy Transmission (NGET) owns the freehold land within the substation and the operational land for Northern Power Grid, the Distribution Network Operator (DNO), is leased from NGET.

2 Grid Connection Agreement

2.1.1 The Proposed Development will supply electricity to the NETS. National Grid Electricity System Operator Limited (NGESO) is the system operator for the complete NETS and 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 National Grid Creyke Beck Substation and Northern Power Grid is the DNO.

2.1.2 The Applicant received a grid connection offer from Northern Power Grid on 8 June 2021, offering connection to the existing 132 kV National Grid Creyke Beck Substation. That offer was accepted by the Applicant on 15 July 2021. (the ‘Grid Connection Agreement’).

2.1.3 Therefore, the Applicant confirms that the output of the Proposed Development will be exported to the NETS via the National Grid Creyke Beck Substation and that the National Grid Creyke Beck 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 132 kV National Grid Creyke Beck Substation. The National Grid Creyke Beck Substation is located approximately 10 km away from the proposed western on-site substation and 13 km from the eastern on-site substation and therefore the Proposed Development includes works to install underground 132 kV cabling to connect the on-site substations to the National Grid Creyke Beck 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 [EN010157/APP/2.2]**:

- **Work No.1 – Panel Areas;**
- **Work No.2 – Battery Energy Storage System (BESS);**
- **Work No.3 – Electrical Cabling;**
- **Work No.4 – On-site Substations;**
- **Work No.5 – Works to lay Electrical Cables up to 132kV;**
- **Work No.6 – Works within National Grid Substation.**

3.1.3 These works are included in Schedule 1 of the **Draft DCO [EN010157/APP/3.1]**. and are described in detail within **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

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 on-site substations and will work together with Northern Power Grid on the design of the onsite substations. The 132 kV cable to connect the on-site substations to the National Grid Creyke Beck Substation will be constructed by the Applicant. Electrical works within National Grid Creyke Beck Substation will be delivered by Northern Power Grid.

Work No.1 – Panel Areas

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

3.1.6 Work No. 1 will therefore comprise the solar PV modules and balance of solar plant. Work No. 1 will be spread across the panel areas.

Work No.2 – Battery Energy Storage System

3.1.7 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.

3.1.8 Work No. 2 will therefore comprise the battery energy storage cells units and associated infrastructure, such as transformers, converters s and ancillary equipment. Underground Cabling to connect the panel areas and BESS to the on-site substations.

Work No.3 – Electrical Cabling

3.1.9 Work No. 3 will comprise the underground electrical cables to connect the Panel Areas (Work No. 1) and the BESS (Work No. 2) to the on-site substations (Work No. 4) and then onto National Grid Creyke Beck Substation (Work No. 6). together with various associated works.

Work No.4 – On-site Substations

3.1.10 Two on-site substations will be required to connect the Solar development to distribution and transmission networks by converting low voltages from electricity generation to high voltages, or vice versa, using power transformers. Work No. 4 will therefore comprise of Work No 4A and work No 4B for the two on-site substations and various associated works.

Work No.5 – Works to Lay Electrical Cables up to 132 kV

3.1.11 Work No. 5 will comprise 132 kV underground electrical cables connecting the two on-site substations (Work No. 4) to the NGET and Northern Power Grid Substation at Creyke Beck Substation(Work No. 6) together with various associated works.

Work No.6 – Works within National Grid Substation

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

3.1.13 Further information on the electrical connection has been considered within **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

4 Acquisition of Land Rights

4.1 Panel Areas, BESS and On-site substations

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

The Proposed Development includes an underground 132 kV cable route to connect the Solar development to the NETS via National Grid Substation. The 132 kV cable is outside of the panel areas, the preference is to use an offroad cable route to connect the panel areas to the National Grid Creyke Beck Substation. Ongoing negotiations are currently being progressed to reach voluntary agreements with all landowners along the 132 kV cable route.

4.2.1 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 [EN010157/APP/3.1]** and that the Proposed Development can therefore be constructed, operated and maintained.

4.3 National Grid Creyke Beck Substation

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

5 Delivery of Works

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.

Underground Cabling to connect the Panel Areas and BESS to the On-site Substations (Work No. 3)

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

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

On-site Substations (Work No. 4)

5.1.4 Under the terms of the Grid Connection Agreement, the DNO will be responsible for designing and constructing any works for the two on-site substations.

Underground Cabling connecting the On-site Substations to the National Grid Creyke Beck Substation (Work No. 5)

5.1.5 Under the terms of the Grid Connection Agreement, the Applicant will be responsible for designing and constructing the underground 132 kV cabling to connect the two on-site substations (Work No. 4) to the National Grid Creyke Beck Substation (Work No. 6). This will be adopted by the DNO.

Construction of electrical infrastructure within the National Grid Creyke Beck Substation (Work no. 6)

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

6 Conclusion

6.1.1 The Applicant is required to submit a statement pursuant to Regulation 6(1)(a)(i) of the APFP Regulations **[Ref. 2]**, 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 SoS 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 National Grid Creyke Beck Substation and that offer has been accepted.
- All necessary works to complete the connection of the Proposed Development to the NETS via National Grid Creyke Beck Substation and enable the export of electricity generated and stored by the Proposed Development will be authorised by the DCO.
- A connection to the National Grid Creyke Beck Substation will be provided via a 132kV underground cable from the two on-site substations within the Proposed Development.
- The Applicant has secured voluntary option agreements for leasehold interests to allow for the construction, operation and decommissioning of the panel areas, BESS and on-site substations.
- NGET is the freeholder owner of the National Grid Creyke Beck 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 cable route by voluntary agreement. In the event these negotiations are unsuccessful, the Applicant is seeking compulsory acquisition powers over the necessary land.
- The Applicant will be responsible for delivering the panel areas, BESS and underground 33 kV cabling to connect these components to the on-site substations. Under the terms of the Grid Connection Agreement, the Applicant will be responsible for delivering the on-site substations and the underground 132 kV cabling to connect the on-site substations to the National Grid Creyke Beck Substation. These would be adopted by the DNO.
- Electrical works within National Grid Creyke Beck Substation will be delivered by the DNO.

7 References

- **Ref. 1**: Planning Act 2008. Available online: https://www.legislation.gov.uk/ukpga/2008/29/section/14
- **Ref. 2**: The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. Available online: https://www.legislation.gov.uk/uksi/2009/2264/contents/made

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