



Botley West Solar Farm

Environmental Statement

3.5 Grid Connection Statement

November 2024

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APFP Regulation 5(2)(a); Planning Act 2008; and Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations

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Grid Connection Statement

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APFP Regulation 5(2)(p)
Planning Act 2008

Executive Summary.

SolarFive Ltd. (the Applicant) is developing Botley West Solar Farm (The Project). The Project will comprise the construction, operation, maintenance and decommissioning of a photovoltaic (PV) solar farm and associated infrastructure with a total capacity exceeding 50 megawatts (MW)R, in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts. The Project will export electricity for connection to the National Grid at Botley West National Grid Substation. October 2027 is the current grid connection offer date, although the Applicant and NGET are in discussions for this to be amended to the beginning Q4 2028. October 2028 is therefore now the assumed date of connection for the purposes of EIA assessment.

This Grid Connection Statement (the Statement) has been prepared by the Applicant as part of an application for a Development Consent Order (DCO) for the construction, operation, maintenance and eventual decommissioning of the Scheme. 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.

This Statement provides confirmation to the Secretary of State for Business, Energy and Industrial Strategy (the Secretary of State) that the Solar Farm will connect to Botley West National Grid Substation via a 400kV cable circuit. The Statement also explains who is responsible for designing and building the infrastructure to connect the Scheme to the Botley West National Grid substation.

The Applicant has, or will have, the ability to procure the necessary land and rights in order to connect the Project to the Botley West National Grid Substation. The Scheme for which development consent is being sought includes the necessary infrastructure to connect the Solar Farm (including an On-Site Substation) to the Botley West National Grid Substation via the Grid Connection Corridor.

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1. Introduction

1.1 Introduction

1.1.1 This Grid Connection Statement (the Statement) has been prepared by SolarFive Ltd. (the Applicant) as part of an application for a Development Consent Order (DCO) for the Botley West Solar Farm (the Project). The application for the DCO has been submitted to the Planning Inspectorate (on behalf of the Secretary of State), with the ultimate decision whether to grant a DCO being made by the Secretary of State pursuant to the Planning Act 2008.

1.1.2 The Project will comprise the construction, operation, maintenance and decommissioning of a photovoltaic (PV) solar farm and associated infrastructure with a total capacity exceeding 50 megawatts (MW)_R, in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts. The Project will export electricity for connection to the National Grid at Botley West. October 2027 is the current grid connection offer date, although the Applicant and NGET are in discussions for this to be amended to the beginning Q4 2028. October 2028 is therefore now the assumed date of connection.

1.1.3 The Project comprises Solar Farm and Grid Connection Corridor, as shown on the Site Location and Order Limits Overview [EN010147/6.4].

1.1.4 Electricity will be generated at the Solar Farm. The Solar Farm includes ground-mounted solar PV panel arrays, supporting electrical infrastructure and an On-Site Substation.

1.1.5 The On-Site Substation will be situated adjacent to the Botley West National Grid Substation. It will transform the energy from the solar PV panel arrays from 275kV to 400kV for transport to the Botley West National Grid Substation.

1.1.6 The Project is defined as a Nationally Significant Infrastructure Project (NSIP) and will require a DCO from the Secretary of State for Business, Energy and Industrial Strategy, due to its generating capacity exceeding 50 megawatts (MW).

1.2 Purpose and Structure of this Statement

1.2.1 This Statement is part of a suite of documents which must accompany the DCO Application 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 generating station to provide a statement of who will be responsible for designing and building the connection to the electricity grid.

1.2.3 The Statement is structured as follows:

Section 1: Introduction

Section 2: Elements of Grid Connection

Section 3: Installation and Construction Details

Section 4: Responsibilities for Designing and Building the Grid Connection

Section 5: Consent for the Grid Connection Works

Section 6: Conclusion

2. Elements of Grid Connection

2.1 Connection between Botley West Solar Farm and Botley West National Grid Substation.

2.1.1 The Project will connect to the National Grid transmission system via a new National Grid 400kV substation to be located close to the existing National Grid 400kV line that runs between Cowley and Walham.

2.1.2 The Solar Farm will connect to the new Botley West National Grid substation via two new 400kV circuits comprising each three 400kV underground cables plus auxiliary cables (e.g. optical fibre and communication cables). The 400 kV cable circuits will connect the Main Substation located within the Solar Farm to the Botley West National Grid Substation.

Discussions have been ongoing with NGET regarding the location for their substation, based upon their own assessment and evaluation work. Whilst, at the time of the submission, a final decision has yet to be taken by NGET, it is likely that the NGET substation will be located in one of two possible locations:

1. On land within the Applicant's control, at its Southern Site, at the western most extremity, south of the Farmoor Reservoir.
2. On land near the Applicant's Southern Site, to the west of and adjoining that Site, south of the Farmoor Reservoir.

2.1.3 The works required to facilitate the connection are described by the works referred to in Schedule 1 of the **draft DCO EN010147/APP/3.1** The draft DCO should be referred to for the precise terminology and full details of each Work No.

The location of each Work is defined by the Works Plans **EN010147/APP/2.3**.

The relevant Works are:

Work No. 2— development of a New National Grid Substation

Work No. 3 –development of onsite substations and associated work ;

Work No. 4 – works in connection with high voltage electrical cabling

Work No. 9 - works to facilitate access to Work No. 2, 3 and 4.

2.2 Connection at Botley West National Grid Substation

2.2.1 To accommodate the proposed connection the Applicant has an agreement with National Grid transmission system. Additional extending works are required to connect the scheme.

3. Installation and Construction Details.

3.1 Construction programme

3.1.1. All construction will be undertaken by the Applicant and its appointed contractors. Engineering, Procurement and Construction (EPC) contracts will be issued to ensure the appointed contractors are experienced, proficient and can carry out the required works in compliance with the requirements of the scheme and NGETs connection offer.

3.1.2. The construction of the 400kV cable circuits within Work No. 4 will be undertaken within the construction phase for the Scheme that will be completed over an approximately 24 month period. The construction will allow for the cable circuits to be delivered considering any local restrictions, such as agricultural or ecological limitations. The cable circuits (Work No. 4) will run from the Main Substation to the Botley West National Grid Substation.

3.1.3. The Applicant intends to use a mix of trenchless and open trench techniques to construct the 400kV cable circuits. Where trenchless techniques are required, these will be scheduled individually within the overall programme envelope to ensure that the works are completed in the most efficient manner possible. This will be determined at the detailed planning and pre-construction phase.

3.1.4. Construction of the Main Substation will be carried out in phases. First the access roads, gates and fences will be established then the construction compound. The civil works phase will commence with the excavation, laying of the compound foundation and earthing. Concrete bases will be laid for transformers, the switch building and cable trenches. The civil works will be completed with the construction of the switch building and any additional structures required for the compound. Following this the electrical cables will be laid and individual transformers will be placed and secured in their final positions. Additional electrical infrastructure will then be installed, including switching and boards within the switch building. Finally electrical connections will be carried out and a complete testing and commissioning programme will be undertaken prior to energisation.

3.2 Construction Method.

3.2.1 The Project will require 2 new 400kV circuits comprised each of three 400kV cables plus auxiliary cables (e.g. optical fibre and communication cables) to connect the Main Substation with the new Botley West Substation. The Applicant intends to use a mix of Trenchless and Open Trench techniques. Joint bays will be required to join sections of cable together.

3.2.2 The Main Substation will consist of two 400kV to 275kV transformers. A switching building containing the control and switching arrays, cable trenches, earthing infrastructure, electrical connections to the scheme and additional civil/security works inclusive of access

3.2.3 Further detail on the construction methods can be found in Chapter 6: Project Description of the Environmental Statement (**EN010147/APP/6.3**)

4. Contractual Agreements

4.1.1 The Project will generate electricity and transmit it to the System Operator (National Electricity System Operator (NESO)) via the Botley West National Grid Substation which will be owned by the Transmission Owner (NGET). NGET is owned and operated by the National Grid Group. NESO was established by the 2023 Energy Act as an independent public corporation.

4.1.2 The Applicant accepted the grid connection offer reference A/NGET/SOLA/21/DENM-EN(0) provided by NGENSO during June 2021, subsequently amended in August 2021 reference A/NGET/SOLA/21/BOTL-EN(0) thereby securing a Bilateral Connection Agreement (BCA) to the new Botley West National Grid Substation.

4.1.3 The Applicant confirms that output of the Solar Farm will be exported via the NETS.

5. Responsibilities for Designing and Building the Grid Connection

5.1 Responsibilities of Solar Five Ltd

5.1.1 The Applicant and its appointed contractors will be responsible for designing and building the following elements of the grid connection (the below is a summary with full descriptions provided in Schedule 1 of the **draft DCO EN010147/APP/3.1**):

a) Work No. 3: development of onsite substations and associated work;

Works 3A – Main substation

- substation comprising main components of 400kV Gas Insulated Switchgear, 400kV Cable Sealing End, 400kV Surge Arrester, 400kV Post-Insulator, 2 x 400/275 kV, 2*500 MVA Transformers, 400kV shunt reactor, 400kV gas insulated bus duct, 400 kV Gas Insulated Switchgear, Lightning protection 400kV Cabling, cable sealing ends and auxiliary equipment;
- substation buildings including building to accommodate 400kV switchgear, buildings to accommodate 275kV switchgear and associated control and protection equipment, control room building to accommodate protection and control cabinets and auxiliary boards and panels;
- hardstanding, internal access road and parking areas; and
- a water storage pond to collect and treat surface water before discharge.

Work No. 4: works in connection with high voltage electrical cabling including:

- works to lay high voltage electrical cables, access and construction compounds for the electrical cables including-
- works to lay up to and including 400kV electrical cables connecting Work No. 3A to Work No. 2;
- grid connection infrastructure, including works to lay up to and including 400kV electrical cables, to connect Work No. 2 to the National Grid network;
- laying down of internal access tracks, ramps, means of access, footways, roads, including the laying and construction of drainage infrastructure, signage and information boards;
- joint bays, link boxes, cable ducts, cable protection, joint protection, manholes;
- marker posts, underground cable marker, tiles and tape, communications chambers, fibre optic cables and lighting and other works associated with cable laying;
- fencing, gates, boundary treatment and other means of enclosure;
- tunnelling, boring and drilling works for trenchless crossings and open trench crossings;

5.1.2 The Applicant and its appointed contractors will also be responsible for the ongoing ownership, management, maintenance and eventual decommissioning of the new 400kV to 275 kV Main Substation and the new 400kV underground cable circuits connecting the Solar Farm and the Botley West National Grid Substation.

5.2 Responsibilities of National Grid

5.2.1 NGET will be responsible for designing and building the new Botley West National Grid Substation and for all non-contestable works (works that will be undertaken by National Grid).

6. Acquisition of land and rights

6.1.1 Negotiations for the purchase of land, rights and interests are ongoing in respect of any new rights required for the Scheme where voluntary agreement has not yet been reached. It is necessary for the Applicant to seek compulsory acquisition powers to secure such land, rights and interests and to ensure that any third-party interests or encumbrances affecting such land, rights and interests may be acquired, overridden or extinguished pursuant to the draft DCO, thereby ensuring that the Scheme can be constructed, operated and maintained.

6.1.2 The Applicant is also seeking to obtain land and rights by negotiation where possible. The status of negotiations is reported in the Compulsory Acquisition Land and Rights Negotiation Tracker **[[EN010147/APP/5.2]**.

7. Consent for the Grid Connection Works

7.1.1 The Applicant is seeking development consent for works to connect the Scheme to the Botley West National Grid Substation including an On-Site Substation (Work No. 3) and 400 kV cable circuit (Work No. 4) to be located within the Grid Connection Corridor within its DCO application.

7.1.2 The Applicant has a competent, accepted grid connection offer from NGET which stipulates the works required to connect to Botley West National Grid Substation, these works have been detailed in this paper.

7.1.3 As such, it is considered that if the same terms as those set out in the **draft Development Consent Order [EN010147/APP/3.1]** are granted, development consent for the development to facilitate the grid connection from the Scheme to the Botley West National Grid Substation will have been secured.

8. Conclusion

8.1.1 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.

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

a) A connection to the Botley West National Grid Substation will be provided via a 400kV cable circuit (Work No. 4) from the Botley West National Grid Substation to the On-Site Substation (Work No. 3) at the Solar Farm via the Grid Connection Corridor.

b) The Applicant has, or will have, the ability to procure the necessary land and rights in order to connect the Project to the NETS; and

c) As stipulated in the **draft Development Consent Order [EN010147/APP/3.1]** the On-Site Substation and Grid Connection Corridor forms part of the Scheme for which development consent is being sought.