

The Drovers Solar Farm

Grid Connection Statement

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1 Introduction

1.1 Background

- 1.1.1 This Grid Connection Statement has been prepared on behalf of The Drovers Solar Farm Limited ('the Applicant') to confirm who will be responsible for designing and building the grid connection infrastructure and associated cabling for the connection to the grid in relation to the Development Consent Order (DCO) Application for the construction, operation and maintenance, and decommissioning of The Drovers Solar Farm (hereafter referred to as the 'Scheme').
- 1.1.2 The Scheme comprises the construction, operation, maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating station and associated development comprising Battery Energy Storage System (BESS), a Customer Substation, and Grid Connection Infrastructure, including a new National Grid Substation. The Scheme would allow for the generation and export of over 50MW Alternating Current (AC) of renewable energy, connecting into the National Electricity Transmission System (NETS) overhead line that passes through the Site (as defined below).
- 1.1.3 As the Scheme would have a generating capacity in excess of 50MW, it is considered to be a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 (PA 2008).
- 1.1.4 The Applicant has been engaged in ongoing discussions with National Grid Electricity Transmission (NGET), the Transmission Operator, throughout the development of the Scheme – further details of these discussions can be found in the **Consultation Report [APP/5.1]**. Over the course of this engagement, the Applicant has shared with NGET the evolving design and siting proposals for the new National Grid Substation, including the **Works Plan [APP/2.3]** which shows the spatial extent of the Scheme, and the **draft Development Consent Order (draft DCO) [APP/3.1]**. Feedback has been invited on those documents and is summarised in **paragraph 4.1.2** below.
- 1.1.5 The Scheme would be located within the Order limits, also referred to as 'the Site'. The Order limits contain all elements of the Scheme comprising the Solar PV Site, the Customer Substation, the National Grid Substation, the BESS, Grid Connection Infrastructure, Mitigation and Enhancement Areas, and the Highway Works (shown in **ES Figure 3.1: Scheme Location [APP/6.3]** and described further in **ES Chapter 3: Order limits and Context [APP/6.1]**). This Statement has been prepared by the Applicant to support the DCO Application and it should therefore be read alongside all other documents submitted by the Applicant.
- 1.1.6 The Scheme will have an export and import connection to the NETS. The Point of Connection (PoC) will be located at a new Swaffham 400kV National Grid Substation and will be owned and operated by NGET.



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

1.2 Statement Purpose

- 1.2.1 This Statement is to support the DCO Application submitted by the Applicant pursuant to Section 55 of the PA 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 Regulations 5(2)(p) and 6(1)(a)(i) of the APFP Regulations, which require 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) states at paragraph 4.11.2 that 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”*. Paragraph 4.11.5 continues to advise that *“the applicant must liaise with National Grid who own and manage the transmission network in England and Wales or the relevant regional DNO or TSO to secure a grid connection”*.
- 1.2.4 Paragraph 4.11.7 of NPS EN-1 states that:
- “The Planning Act 2008 aims to create a holistic planning regime so that the cumulative effect of different elements of the same project can be considered together. Co-ordinated applications typically bring economic efficiencies and reduced environmental impact. The government therefore envisages that wherever reasonably 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, as outlined in EN-5. This is particularly encouraged to ensure development of more co-ordinated transmission overall”*.
- 1.2.5 Paragraph 4.11.12 of NPS EN-1 states that:
- “the Secretary of State should be satisfied that appropriate network connection arrangement are/will be in place for a given project regardless of whether one or multiple (linked) applications are submitted”*.
- 1.2.6 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 these are defined in Schedule 1 of the **draft DCO [APP/3.1]**. The



maximum spatial extents of each Work No. is defined on the **Works Plan [APP/2.3]**, which should be consulted for further details. The Work Numbers relevant to this Statement are as follows:

- Work No. 3: works in connection with an onsite substation including:
 - Work No. 3A: a substation up to 400kV with associated infrastructure; and
 - Work No. 3B: works to lay electrical cables up to 400kV and associated infrastructure.
- Work No. 4: works in connection with the new National Grid Substation, including:
 - Work No. 4A: a substation up to 400kV with associated infrastructure
 - Work No. 4B: works in connection with the new National Grid Substation, comprising of associated infrastructure; and
 - Work No. 4C: works to facilitate temporary construction access and permanent access to the new National Grid Substation and associated infrastructure.
- Work No. 5: works in connection with a connection to the existing overhead transmission electric line including:
 - Work No. 5A: works to modify, reconfigure, construct and install a new overhead transmission electric line
 - Work No. 5B: works in connection with the new overhead transmission electric line, comprising of associated infrastructure
 - Work No. 5C: works in relation to the existing overhead transmission electric line and temporary construction laydown areas; and
 - Work No. 5D: the dismantling and removal of all existing overhead transmission electric line and pylons and associated works relating to access.

1.3.2 The above works will form the infrastructure that allows electricity, which is generated from the solar PV generating station (Work No. 1) or has been stored in the BESS (Work No. 2), to be transmitted to the PoC at the proposed new National Grid Substation. The same infrastructure will allow for electricity from the grid to be transmitted from the PoC and stored in Work No. 2.



2 Grid Connection Agreement

- 2.1.1 The Site was identified as part of the pre-application process. The Applicant had considered existing substations (Walpole, Necton and Norwich Main) as the PoC (see **ES Chapter 4: Reasonable Alternatives and Design Evolution [APP/6.1]**), only to find that these could not accommodate a suitable connection. Following discussions with NGET, it was identified that capacity was available on the circuits and that the new National Grid Substation was required in order for the Applicant to connect the Scheme to the grid.
- 2.1.2 The Applicant submitted a grid application to National Energy System Operator (NESO), formally named National Grid Electricity System Operator Limited (NGESO), the system operator of NETS, in May 2022 to connect the Scheme to the NETS overhead transmission line between Walpole and Necton via the new National Grid Substation.
- 2.1.3 NESO then worked with NGET to produce a connection offer which was received by the Applicant in December 2022 (NESO reference: A/NGET/IGP/22/SWAF-EN(1)).
- 2.1.4 As part of that offer, NESO contracted the Applicant to provide the land and gain consent for the proposed new National Grid Substation. This has therefore been included as part of the DCO Application.
- 2.1.5 The connection offer was accepted in the form of a Bilateral Connection Agreement (BCA) between the Applicant and NESO, allowing for a Transmission Entry Capacity (TEC) of 500 MW (AC) export to and 500 MW (AC) import from the NETS. This was entered into in May 2023. The acceptance of the connection offer demonstrates that a connection at the PoC is technically feasible.
- 2.1.6 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 May 2023.
- 2.1.7 The Grid Connection Agreement allows the Applicant to export the electricity produced at the Scheme up to 500 MW (AC) through the new National Grid Substation known as the New Swaffham 400kV Substation. It also allows for the import of up to 500 MW (AC) of electrical energy to be stored in an Energy Storage Facility (for the purposes of the DCO Application, this is assumed to employ battery technology and is therefore referred to as a 'Battery Energy Storage System' or 'BESS' throughout this DCO Application) located on the Site 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 a single site which will contain the Solar PV, BESS, Customer Substation, and Grid Connection Infrastructure, including the new National Grid Substation. The electricity produced and stored within the BESS will need to pass via the Customer Substation in order for the voltage to be transformed up to 400kV to then be exported to the NETS via the new National Grid Substation.
- 3.1.2 The works described in **paragraph 1.3.1** above are needed to construct the Grid Connection Infrastructure of the Scheme.
- 3.1.3 There is a requirement for cables to accommodate the circuit running between the Customer Substation, the new National Grid Substation and the Solar PV Site. There is also a need to install a 400kV cable between the 400kV Customer Substation and the new National Grid Substation. This cabling is contained within the Site.
- 3.1.4 The maximum length of high voltage cabling distance between both the Customer Substation and the new National Grid Substation is approximately 0.6km.
- 3.1.5 A detailed description of the elements that make up the Grid Connection Infrastructure, the new National Grid Substation and the Customer Substation can be found in **ES Chapter 5: The Scheme [APP/6.1]**.

3.2 Customer Substation and Cable Routes at 400 kV

Customer Substation (400kV) (Work No. 3A)

- 3.2.1 The Customer Substation (400kV) will collect all electricity produced across the Solar PV Site at 33kV, including energy stored in the BESS. The electricity will then be converted using high voltage transformers to a single 400kV supply that can be exported to the NETS. The Customer Substation (400kV) will contain Air Insulated Switchgear (AIS) and typical substation infrastructure in line with good working practice and standards.

Interconnecting Cables (400kV) (Work No. 3B)

- 3.2.2 A single 400kV circuit will run underground between the Customer Substation (400kV) to the adjacent new National Grid Substation 400kV AIS.

3.3 National Grid Substation (Work No. 4)

- 3.3.1 Works will be required to build a new 400kV AIS substation to be controlled by NGET. It will consist of four feeder bays, one coupler bay, one section bay and the Applicant's



generation bay and typical substation infrastructure in line with good working practice and standards.

3.3.2 The new substation will become part of the NETS, connecting to the existing overhead transmission line via either a single or double turn in. The Applicant's preference is the double turn in option and, if this proceeds, once in place it will be part of the Swaffham 400kV substation.

3.3.3 This new National Grid Substation will collate the electricity generated by the Scheme and introduce it into the NETS.

3.4 Works in connection with a connection to the existing overhead transmission electric line (Work No. 5)

3.4.1 As part of works in relation to the existing overhead transmission line, the temporary diversion of the existing overhead transmission line to facilitate the works is required.

3.4.2 This will require:

- Temporary towers to be installed to divert sections of the existing overhead line to the new route
- New towers to be built along the new route
- New conductor to be installed on the new towers; and
- Removal of temporary towers and any towers now deemed redundant by NGET.



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 and Eltranet Design to produce a bespoke electrical design for the Scheme. This has included electrical front end engineering design for the Site, Customer Substation, new National Grid Substation, reconfiguring the overhead transmission line, associated equipment and structures and overall compound design.
- 4.1.2 Ongoing discussions are being had between the Applicant and NGET with regard to the configuration and layout of the new National Grid Substation and the reconfiguration of the overhead transmission line. In the latest of these discussions, NGET confirmed that there is sufficient space in the proposed area for the new National Grid Substation, and these discussions have resulted in amendments to the electrical design of the new National Grid Substation (Work No. 4A), works in connection with the new National Grid Substation (Work No. 4B) and works in connection with a connection to the existing overhead transmission electric line (Work No. 5). The **Works Plan [APP/2.3]** accurately reflects this recent engagement, whilst the illustrative material submitted together with this DCO Application (for example, **ES Figure 5.1: Concept Masterplan [APP/6.3]** and **ES Appendix 5.1: Illustrative Technical Information [APP/6.4]** will be revised as the micro-siting and orientation of the new National Grid Substation within Work No. 4A continues to be discussed.
- 4.1.3 The Applicant and its appointed contractors and consultants will be responsible for the design and construction of the on-site Customer Substation (400kV) (Work No. 3A) and works to lay electrical cables up to 400kV (Work No. 3B).

4.2 Responsibilities of National Grid Electricity Transmission

- 4.2.1 NGET will own and operate and therefore be responsible for the following sections of the grid connection including the detailed design and construction of:
- The new National Grid Substation (400kV) (Work No. 4A), works in connection with the National Grid Substation (Work No. 4B) and works to facilitate temporary construction access and permanent access to the National Grid Substation and associated infrastructure (Work No. 4C); and
 - Works in connection with a connection to the existing overhead transmission electric line (Work No. 5).



5 Land Rights

5.1 Substation and Energy Storage

- 5.1.1 The Applicant has entered a voluntary option to lease agreement with the respective landowner of the Site.

5.2 Cable Route

- 5.2.1 All cabling is installed within the Site and as such is all under the voluntary agreement with the landowner.

5.3 National Grid Substation and Overhead Transmission line

- 5.3.1 Under this DCO Application, the rights will be established for NGET and necessary land rights to undertake works to build the new National Grid Substation.
- 5.3.2 The Applicant is pursuing voluntary agreements with landowners with respect for works in connection with the existing and new overhead transmission line, but will also be seeking compulsory acquisition and temporary use powers through the DCO (see **draft DCO [APP/3.1]**) to enable these elements of the Scheme to be delivered without impediment.



6 Consenting of the Grid Connection Infrastructure

- 6.1.1 The Applicant is seeking to secure the consents for the Grid Connection Infrastructure via the DCO Application through Work Nos. 3, 4 and 5 as set out in Schedule 1 of the **draft DCO [APP/3.1]**. If the same terms relating to these Work Nos. are granted, development consent for the grid connection will have been secured.



7 Conclusion

- 7.1.1 The Applicant is making an application for a DCO for the Scheme, of which the Grid Connection Infrastructure forms part thereof. Therefore, this Statement has been submitted as per the requirement stated in Regulation 6(1)(a)(i) of the APFP Regulations by confirming 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 NESO to connect the Scheme to the NETS along the overhead electrical transmission line via a new National Grid Substation referred to as the New Swaffham 400kV Substation
 - The Applicant has accepted this grid offer by entering into a BCA with NESO. This demonstrates that the grid connection is technically viable
 - The Applicant has also undertaken electrical design for the Scheme including reviewing suitable siting and location of substations and the works required to connect to the existing overhead transmission line; and
 - A single 400kV circuit will run from the on-site 400kV Customer Substation to the new National Grid Substation, which will allow the Scheme to connect to the NETS.
- 7.1.3 The Applicant will be responsible for the design and construction of the on-site Customer Substation (400kV) (Work No. 3A) and works to lay electrical cables up to 400kV (Work No. 3B).
- 7.1.4 NGET will be responsible for the new National Grid Substation (400kV) (Work No. 4A), works in connection with the new National Grid Substation (Work No. 4B) and works to facilitate temporary construction access and permanent access to the new National Grid Substation and associated infrastructure (Work No. 4C), alongside works in connection with a connection to the existing overhead transmission electric line (Work No. 5).
- 7.1.5 The Applicant will also operate and maintain these elements for the lifetime of the Scheme, with the exception of operation and maintenance relating to the new National Grid Substation and new overhead transmission electric line, which are the responsibility of NGET.
- 7.1.6 As part of the Scheme, the Applicant is required to establish a connection to the new National Grid Substation. This can be achieved through a minimum of one overhead transmission circuit. However, as part of this DCO Application, the Applicant has proactively assessed and included the option to divert and connect both existing overhead transmission lines, enabling either a single or double turn in to the substation (though, as stated above, the Applicant's preference is the double turn in option). Through discussions with NGET, the Applicant has identified the preferred solution as the diversion of both overhead transmission lines directly into the new National Grid Substation. This approach



would allow for the decommissioning and removal of the existing section of overhead line, thereby reducing long term visual and environmental impacts on the local area.

- 7.1.7 This proposed solution not only enhances the operational efficiency and resilience of the transmission network but also delivers long term maintenance benefits. Furthermore, it aligns with the strategic objectives of minimising infrastructure footprint and supporting the transition to a low carbon energy system.
- 7.1.8 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.
- 7.1.9 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 [APP/3.1]**, the Grid Connection Infrastructure forms part of the Scheme for which development consent is being sought.



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