

# Cottam Solar Project

## Grid Connection Statement

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## Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>3</b>
1.1	BACKGROUND	3
1.2	STATEMENT PURPOSE	3
1.3	WORK NUMBERS	4
<b>2</b>	<b>GRID CONNECTION AGREEMENT</b>	<b>4</b>
<b>3</b>	<b>ELEMENTS OF THE GRID CONNECTION</b>	<b>5</b>
3.1	INTRODUCTION	5
3.2	COTTAM 1 CABLE ROUTE (WORK No. 6A AND 6B)	6
3.3	COTTAM 1 SUBSTATION (WORK No. 4A)	6
3.4	COTTAM 2 CABLE ROUTE (WORK No. 6A)	6
3.5	COTTAM 2 SUBSTATION (WORK No. 4B)	6
3.6	COTTAM 3 A CABLE ROUTE (WORK No. 6A)	6
3.7	COTTAM 3 A SUBSTATION (WORK No. 4D)	6
3.8	COTTAM 3 B CABLE ROUTE (WORK No. 6A)	6
3.9	COTTAM 3 B SUBSTATION (WORK No. 4C)	6
3.10	COTTAM NATIONAL GRID SUBSTATION WORKS	7
<b>4</b>	<b>DESIGNING AND BUILDING OF THE GRID CONNECTION</b>	<b>7</b>
4.1	RESPONSIBILITY OF THE APPLICANT	7
4.2	RESPONSIBILITIES OF NATIONAL GRID ELECTRICITY TRANSMISSION	7
<b>5</b>	<b>LAND RIGHTS</b>	<b>8</b>
5.1	SUBSTATIONS AND ENERGY STORAGE SITES	8
5.2	CABLE CORRIDOR ROUTE	8
5.3	COTTAM NATIONAL GRID SUBSTATION	8
<b>6</b>	<b>CONSENTING OF THE GRID CONNECTION WORKS</b>	<b>8</b>
<b>7</b>	<b>CONCLUSION</b>	<b>8</b>

## Issue Sheet

Report Prepared for: Cottam Solar Project Ltd.  
DCO Submission

### Grid Connection Statement

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## **1 Introduction**

### **1.1 Background**

- 1.1.1 Cottam 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 Cottam Solar Project (the “Scheme”).
- 1.1.2 The Scheme comprises a number of land parcels (the ‘Site’ or ‘Sites’) described as Cottam 1, 2, 3a and 3b for the solar arrays, grid connection infrastructure and energy storage; and the Cable Route Corridors. The Sites are located approximately 6.5km south east and 4km north east of Gainsborough. See the Site Location Plan [EN010133/APP/C2.1] for the site locations.
- 1.1.3 The Scheme is described in full in Chapter 4 of the Environmental Statement (ES), Scheme Description [EN010133/APP/C6.2.4], which supports the application.
- 1.1.4 As each of the four 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 will confirm 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 Cottam 400kV National Grid substation within the site of the now-decommissioned Cottam 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 [EN010133/APP/C3.1]. The location of each Work number is defined on the Works Plans [EN010133/APP/C2.4] which should be consulted for further detail.

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

- Work No.4 — work in connection with onsite substations (at each Site);
- Work No.5 — works to the National Grid substation to facilitate connection of the authorised development to the National Grid; and
- Work Nos.6A and 6B — 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.4A to Work No. 5 and Work Nos.4B, 4C and 4D to Work No. 4A.

## 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 July 2020 to connect the Scheme to the NETS at Cottam 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 October 2020 (NGESO reference: A/NGET/CGCL/20/COTT-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 600MW to export and import from the NETS. This was entered into in January 2021. 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 January 2021.
- 2.1.5 The Grid Connection Agreement allows the Applicant to export the electricity produced at the four Sites, Cottam 1, 2, 3a and 3b, not to exceed 600MW. It also allows for the import of up to 600MW 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 four Sites where the solar arrays will be constructed. There will also be an Energy Storage System or BESS constructed on the Cottam 1 site. The electricity produced on each Site and stored within the BESS, will need to pass via the Cottam 1 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.4 — works in connection with onsite substations;
  - Work No.5 — works to the existing Cottam Power Station substation to facilitate connection to the National Grid; and
  - Work No. 6 — 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 No's 6A and 6B).
- 3.1.3 Cottam 2, Cottam 3a and 3b Cable Route Corridors will accommodate circuits running to Cottam 1 substation.
- 3.1.4 The total high voltage Cable Route Corridor distance from the Cottam 3a substation to Cottam Power Station (National Grid substation) is approximately 27.5km. 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 [EN010133/APP/C6.2.4].

### **3.2 Cottam 1 Cable Route (Work No. 6A and 6B)**

3.2.1 A single 400kV circuit, consisting of three cables will run underground from the Cottam 1 substation to the Cottam 400kV substation spare bay, part of the NETS, at Cottam Power Station. This cable route will be approximately 13.3 km long.

3.2.2 The circuit will run between Willingham by Stow and Stow, then south of Marton. Horizontal Directional Drilling (HDD) techniques will be used to cross the River Trent where the cable will round the north and then west of the existing Cottam Power Station. Here it will then run to the Cottam 400kV substation spare bay.

### **3.3 Cottam 1 Substation (Work No. 4A)**

3.3.1 The Cottam 1 400kV substation will collate all electricity produced from Cottam 2, 3a and 3b which will enter the Cottam 1 substation at 132kV, along with the electricity produced and stored at Cottam 1, 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.

### **3.4 Cottam 2 Cable Route (Work No. 6A)**

3.4.1 The electricity generated at Cottam 2 is collected by a substation on site and then exported to the Cottam 1 substation via a 132kV circuit of underground cables totalling approximately 9.3 km.

### **3.5 Cottam 2 Substation (Work No. 4B)**

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

### **3.6 Cottam 3a Cable Route (Work No. 6A)**

3.6.1 The electricity generated at Cottam 3a is collected by a 33kV/132kV substation on site and then exported to the Cottam 1 substation via a 132kV circuit of underground cables totalling approximately 14.2km.

### **3.7 Cottam 3a Substation (Work No. 4D)**

3.7.1 The Cottam 3a substation will transform all of the electricity produced at the Cottam 3a Site from 33kV up to 132kV using high voltage transformers.

### **3.8 Cottam 3b Cable Route (Work No. 6A)**

3.8.1 The electricity generated at Cottam 3b is collected by a 33kV/132kV substation on site and then exported to the Cottam 1 substation using the same 132kV circuit of underground cables that runs from Cottam 3a with the distance between the Cottam 3b and Cottam 1 substations totalling approximately 12.6km.

### **3.9 Cottam 3b Substation (Work No. 4C)**

3.9.1 The Cottam 3b substation will transform all of the electricity produced at the Cottam 3b Site from 33kV up to 132kV using a high voltage transformer.

### **3.10 Cottam National Grid Substation Works**

3.10.1 Works will be required to an ex-generation bay, once used by the now decommissioned power station at Cottam Power Station, to enable the Scheme to connect to the grid. The works required are anticipated to consist of the provision of:

- Busbars and connectors to connect to the existing busbar disconnectors at the National Grid substation;
- 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; and
- A 3phase set of 400kV high voltage cable sealing ends and cables connecting the National Grid site with the Scheme's site at Cottam 1.

3.10.2 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 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 Cottam 1, 2, 3a and 3b (Work No. 4);
- High voltage grid connection route (Work No. 6).

### **4.2 Responsibilities of National Grid Electricity Transmission**



- 4.2.1 NGET will be responsible for the following sections of the grid connection, for design and construction, (which will be owned and operated by NGET):
- Works to the NG Cottam Power Station substation spare bay (Work No. 5) (as described above).

## **5 Land Rights**

### **5.1 Substations and Energy Storage Sites**

- 5.1.1 The Applicant and Bonsdale Solar Farm Limited (also part of Island Green Power) have entered into a voluntary Option to Lease Agreement with the respective landowners of Cottam 1, 2, 3a and 3b.

### **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 [EN010133/APP/C3.1] to enable the Grid Connection to be delivered without impediment.

### **5.3 Cottam National Grid Substation**

- 5.3.1 NGET already have the necessary land rights to undertake works to the ex-generation bay.

## **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. 4, 5 and 6 as set out in Schedule 1 of the draft DCO [EN010133/APP/C3.1]. 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, Cottam 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 NGENSO to connect the Scheme to the NETS at Cottam 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 Cottam 3a one cable circuit at 132kV will run directly to Cottam 1 400kV substation, passing through the Cottam 2 and Cottam 3b site.
- From Cottam 3b one cable circuit at 132kV will join into the 132kV circuit from Cottam 3a and then run directly to Cottam 1 400kV substation, passing through the Cottam 2 site.
- From Cottam 2 one cable circuit at 132kV will run directly to Cottam 1 400kV substation.
- A 33/132/400 kV substation located on Cottam 1 will collate electricity generated from all of Cottam 1, 2, 3a & 3b and energy stored at Cottam 1.
- A single 400kV circuit will then run from Cottam 1 to the Cottam substation where the scheme will 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 spare bay to allow for the Scheme's connection, and ongoing maintenance of the bay thereafter for the lifetime of the Scheme.
- 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.