

#### BILATERAL CONNECTION AGREEMENT

**SP Distribution plc (1)**

**And**

**[ XXXX ] (2)**

**BILATERAL CONNECTION AGREEMENT**

**FOR A DIRECTLY CONNECTED DISTRIBUTION SYSTEM OF**

**ANOTHER LICENSED DISTRIBUTOR**

**AT

[ XXXX ]**

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**THIS BILATERAL CONNECTION AGREEMENT** is made on the [XXX] day of [XXX] 20[XX]

**BETWEEN**

(1) **SP DISTRIBUTION** plc a company registered in Scotland with the registered number SC189125 whose registered office is at 320 St Vincent Street, Glasgow, G2 5AD (the **“Company"**, which expression shall include its successors and/or permitted assigns); and

(2) [ XXX ] a company registered in [ XXX ] with number [ XXX ] whose registered office is at [ XXXX ] (the “**User**”, which expression shall include its successors and/or permitted assigns).

**WHEREAS**

(A) The User has applied for Connection to and use of the Company’s Distribution System and pursuant to the Company’s Distribution Licence the Company is required to offer terms in this respect.

(B) The Company and the User are parties to the Distribution Connection and Use of System Agreement (the “**DCUSA**”) as referred to in Condition 22 of their distribution licences granted, or treated as granted, under the Electricity Act 1989.

(C) This Bilateral Connection Agreement including its schedules (this “**BCA**”) is entered into pursuant to the DCUSA and shall be read as being governed by it.

(D) For the purposes of this BCA, the Company is the person providing Connection and Use of Distribution System (and so is the Company for the purposes of the DCUSA) and the User is the person receiving Connection and Use of Distribution System (and so is the User for the purposes of the DCUSA).

**NOW IT IS HEREBY AGREED** as follows:

**1 DEFINITIONS, INTERPRETATION AND CONSTRUCTION**

1.1 Unless the subject matter or context otherwise requires or is inconsistent therewith, terms and expressions defined in the DCUSA have the same meanings in this BCA. Where terms and expressions have different meanings in respect of Sections 2A and 2B of the DCUSA, the meanings given in respect of Section 2B of the DCUSA shall apply.

* 1. The following terms and expressions shall have the meaning set out below:

**“Accredited”** has the meaning given thereto in the Master Registration Agreement;

“**Apparatus**” means all equipment in which electrical conductors are used, supported or of which they may form part;

“**Commencement Date”** means the date that the connection is energised as detailed in Part 1a of Schedule 1;

“**Company’s Equipment**” means the switchgear or other equipment, lines or other parts of the Company’s Distribution System or any other property or rights of the Company, including any Substation;

"**G5**" is the current Engineering Recommendation G5, “Harmonic voltage distortion and the connection of harmonic sources and/or resonant plant to transmission systems and distribution networks in the United Kingdom”;

"**G88**" is the current Engineering Recommendation G88, “Principles for the planning, connection and operation of electricity distribution networks at the interface between distribution network operators (DNOs) and independent distribution network operators (IDNOs)”;

"**G99**" is the current Engineering Recommendation G99, “Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019”;

"**G100**" is the current Engineering Recommendation G100, “Technical Requirements for Customers’ Export and Import Limitation Schemes”;

“**Plant**” means fixed and movable items other than Apparatus;

“**Power Factor**” means the ratio of active power (kW) to the apparent power (kVA);

"**P28**" is the current Engineering Recommendation P28, “Voltage fluctuations and the connection of disturbing equipment to transmission systems and distribution networks in the United Kingdom”;

"**P29**" is the current Engineering Recommendation P29, “Planning limits for voltage unbalance in the UK for 132 kV and below”;

“**Schedule**” means the schedule annexed and executed as relative to this Agreement;

**“Substation”** means an electricity substation (as defined in the Regulations) of the Company;

“**User’s Customer**” means any person connected to the User’s Distribution Network for the purposes of receiving an electricity supply;

“**User’s Distribution Network**”means at any time the User’s electricity network for the distribution of electricity of which brief details are given in of Schedule 1 together with any structures, equipment, lines, appliances or devices (not being Company’s Equipment) used or to be used by the User and connected or to be connected to the Company’s Distribution System at that time;

“**User’s Premises**” means at any time any land or buildings of the User in which any of the Company’s Equipment is to be installed or is at that time situate;

1.3 Unless the subject matter or context otherwise requires or is inconsistent therewith, the rules of interpretation applying in the DCUSA shall apply equally to this BCA, and accordingly clause 1.2 of the DCUSA shall apply to this BCA as if it was set out herein and referred to this BCA (rather than “the Agreement”). Where different rules of interpretation apply in respect of Sections 2A and 2B of the DCUSA, the rules of interpretation applying in respect of Section 2B of the DCUSA shall apply.

**2 COMMENCEMENT, DURATION AND CONNECTION**

2.1 This BCA shall take effect on the date hereof and shall continue in force until terminated in accordance with Clause 7.

2.2 The DCUSA and this BCA shall supersede any prior agreements or arrangements between the Company and the User in respect of Connection at the Connection Points specified herein.

**3 THE USER’S RIGHT TO BE AND TO REMAIN CONNECTED TO THE COMPANY’S DISTRIBUTION SYSTEM**

3.1 Subject to the terms and conditions of the DCUSA and this BCA, the User shall have the right for the User’s Distribution System to be, and to remain, Connected to the Company’s Distribution System at the Connection Points specified herein, and (subject to the DCUSA) the right to be and remain Energised.

3.2 The rights referred to in Clause 3.1 are conditional upon:

3.2.1 ‘Completion’ of the relevant Connection Assets under and in accordance with any agreement for the construction or modification of the Connection Assets so that they may be Energised;

3.2.2 the Company having procured, or the User having procured or granted to the Company in respect of land under its control, the land rights and interests for the Connection Assets as specified in Schedule 3 (and those land rights and interests remaining in force).

3.2.3 the User, as an Independent Distribution Network Operator (IDNO) connected to the Company’s Distribution System, complying with the requirements of SUB-02-013 and any other relevant policies as published (and updated from time to time) on the Company’s website.

3.3 If the conditions set out in Clause 3.2 are not fulfilled at the date hereof each party shall use reasonable endeavours to procure the fulfilment of those conditions relating to it which have not already been fulfilled. If the conditions have not been fulfilled within three months of the date hereof, the Company shall have the right to terminate this BCA.

3.4 Once each of the conditions in Clause 3.2 has been fulfilled, each party shall use reasonable endeavours to keep such conditions relating to it fulfilled throughout the term of this BCA.

3.5 The User and the Company undertake to each other that they shall forthwith notify the other of any change of circumstances occurring hereafter as a result of which any of the above conditions ceases to apply and the User and the Company shall indemnify each other against all actions, proceedings, claims or demands brought or threatened against them by a third party as a result of any breach of the undertakings contained in Clause 3.

**4 THE CONNECTION POINTS, CONNECTION EQUIPMENT AND CONNECTION ASSETS**

4.1 The Connection Points, Connection Equipment and Connection Assets to which this BCA relates are more particularly described in Schedules 1 and 3.

**5 MAXIMUM CAPACITY**

5.1 The Maximum Import Capacity and the Maximum Export Capacity for this BCA are specified at Schedule 1.

**6 COMPLIANCE WITH SITE SPECIFIC CONDITIONS AND OPERATIONAL ARRANGEMENTS**

6.1 The site specific conditions and operational arrangements are specified in Schedule 3. As appropriate the Company and/or the User shall use reasonable endeavours to comply with them.

**7 TERM**

7.1 Subject to Clause 3.3, this BCA shall continue in full force and effect until:

7.1.1 terminated by the User giving the Company 3 months’ notice in writing (or such lesser period as may be agreed between the parties);

7.1.2 terminated by the Company giving the User 3 months’ notice in writing (or such lesser period as may be agreed between the parties) save that for so long as the Company is required to offer terms for Connection and Use of Distribution System to the User in respect of the Company’s Distribution System pursuant to the Company’s Distribution Licence, such termination shall only be effective if the User does not notify the Company within 14 days of the date of the Company’s notice that the User requires replacement terms to be entered into pursuant to Condition 12 of the Company’s Distribution Licence;

7.1.3 terminated in accordance with Clause 7.3; or

7.1.4 (subject to contrary agreement between the parties) Disconnection of the Connection Point.

7.2 For the purpose of this BCA it shall be an event of default if:

7.2.1 the User ceases to be a Party to the DCUSA;

7.2.2 the User breaches in any material respect any of its obligations under this BCA and (if it is capable of remedy) it is not remedied within 30 days of receiving written notice from the Company of the occurrence thereof; or

7.2.3 any of the conditions precedent set out in Clause 3.2 and relating to the User cease to be satisfied.

7.3 Upon an event of default pursuant to Clause 7.2, the Company (without prejudice to its other rights and remedies) shall have the following rights:

7.3.1 to terminate this BCA;

7.3.2 to an injunction or equitable relief, or to make restitution of amounts improperly received; and

7.3.3 to set off any amounts then due and owing by the User to the Company against amount payable by the Company to the User.

7.4 Upon termination of this BCA the User shall allow the Company at its sole option to Disconnect, and to enter the User’s premises in order to Disconnect, the Connection Point and shall pay to the Company all sums then due and payable or accrued due under this BCA and any costs incurred by the Company in Disconnecting the Connection Point and removing the Company’s Connection Equipment and/or the User’s Connection Equipment and re-instating the Company’s Premises or those of any Affiliate.

7.5 Termination of this BCA shall not affect any rights or obligations which may have accrued prior to termination or resulting from the event giving rise to the right to terminate and shall not affect any continuing obligations which survive termination.

7.6 Clauses 7.3, 7.4, 7.5, 7.6, 7.7 and 9 shall survive termination of this BCA.

7.7 Upon termination of this BCA for any reason whatsoever, the User shall pay to the Company the charges due or owing to the Company under the DCUSA and this BCA (or such other agreements as may be in place) together with any, costs, fees and expenses properly incurred by the Company as a result of such termination, and the User shall pay the same within 28 days of the date of an invoice submitted by the Company.

**8 VARIATIONS**

8.1 Subject to Clause 8.2, and 8.3 below, no variation to this BCA shall be effective unless made in writing and signed by or on behalf of both parties.

8.2 Either party shall at any time be entitled to propose variations to this BCA by notice in writing to the other party (including variations to the Maximum Import Capacity and the Maximum Export Capacity). The Company and the User shall negotiate in good faith the terms of any such variation, but if a variation to this BCA has not been agreed and put into effect within 20 Working Days after it has been proposed, either party shall be entitled to refer the matter to the Authority, pursuant to Section 23 of the Act, as if the variation were a new connection as referred to in that Section. The parties shall give effect to the determination of the Authority and shall enter into any agreement supplemental to this BCA as shall be necessary to give effect to any variation agreed or so determined.

8.3 The parties shall use reasonable endeavours to ensure the BCA is maintained (or varied) in line with the DCUSA and other Relevant Instruments.

**9 GENERAL**

9.1 For the purposes of this BCA and the provisions of the DCUSA referred to in Clause 9.2.1, the figure of “£1 million” referred to in that provision of the DCUSA shall remain unchanged.

9.2 Subject to Clause 9.1, the provisions of the DCUSA under the following headings shall apply to this BCA as if they were set out herein and referred to this BCA (rather than “the Agreement”):

9.2.1 Limitation of Liability;

9.2.2 Force Majeure;

9.2.3 Disputes;

9.2.4 Notices;

9.2.5 Entire Agreement;

9.2.6 Severability;

9.2.7 Waivers;

9.2.8 Third Party Rights;

9.2.9 Assignment and Sub-contracting; and

9.2.10 Law and Jurisdiction.

**IN WITNESS WHEREOF** the hands of the duly authorised representatives of the parties hereto at the date first above written:

Signed for and on behalf of the User by )

 )

Print name: ................................................. ) Signature: ...............................................

 )

Job title: ................................................. )

Before this witness

Print name: ................................................. ) Signature: ...............................................

 )

Job title: ..............................................… )

Address: ……………………………….

 ..........................................…....

 ............................................…..

Signed for and on behalf of the Company by )

 )

Print name: ................................................. ) Signature: ...............................................

 )

Job title: ................................................. )

Before this witness

Print name: ................................................. ) Signature: ...............................................

 )

Job title: ..............................................… )

Address: ………………………………...

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# SCHEDULE 1 – CONNECTION CHARACTERISTICS

**Part 1a – Details of Connection**

|  |  |  |
| --- | --- | --- |
| 1. | Name of Connection | [ XXX ] |
| 2. | Connection Address  | [ XXX ] |
| 3. | Connection Point | [ XXX ] |
| 4. | Voltage(s) of Delivery | [ XXX ] |
| 5. | Commencement Date  | [ XXX ] |
| 6. | Connection Charge | [ XXX ] (exclusive of VAT). The Company acknowledges that full payment of this connection charge was received at the time of the User’s acceptance of the Company’s Connection offer. The Company has not contributed to the cost of this Connection. |

**Part 1b – User’s Maximum Capacity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| User’s Maximum Capacity | **Upon Energisation (kVA)** | **At end of Year 1 (kVA)** | **At end of Year 2 (kVA)** | **At end of Year 3 (kVA)** |
| 1. | Maximum Import Capacity | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |
| 2. | Maximum Export Capacity | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |

The Company shall review the User’s actual Maximum Import Capacity and Maximum Export Capacity requirements on an annual basis. Such review shall be carried out no sooner than one year following the date that the Connection was first energised. Notwithstanding the provisions of Clause 8.2 of this BCA, the Company reserves the right, following discussion with the User, to amend the User’s Maximum Import Capacity and/or Maximum Export Capacity in line with the User’s actual capacity requirements at the time of each review.

**Part 2 – Type of Connection**

It should be noted that the proposed method of connection for the User’s Installation is based on a system analysis with a Maximum Export/Import Capacity (Unfirm) of XXXXXXXX kW onto a single 33,000 / 11,000 volt Connection Point. The Connection Point shall be connected to the Distribution System by a single radial circuit originating from XXXXXXXX Grid Supply Point [G.S.P.] substation (Refer to drawing in Schedule 1, Part 4 (c)).

[TEXT OPTION 1\*: FOR SITES WHERE THE PRIMARY PURPOSE OF THE IMPORT CAPACITY OF THE PREMISES IS WHOLLY OR MAINLY ELECTRICITY STORAGE, USE THIS PARAGRAPH AND DELETE THE ‘TEXT OPTION 2’ PARAGRAPHS UNDERNEATH] The import and export of Your connection may be curtailed or interrupted when any of the relevant parts of the Distribution or Transmission System are not intact. These could be due to planned outages, unplanned outages (faults), or maintenance on either Distribution or Transmission System assets.

\* Text option 1 only applies to connection applications and applications to modify existing connections for premises where the application is received on or after 30 September 2023. For connections that do not meet the criteria for text option 1, use text option 2 and delete text option 1.

[TEXT OPTION 2: FOR ALL OTHER SITES, USE THESE TWO PARAGRAPHS AND DELETE THE ‘TEXT OPTION 1’ PARAGRAPH ABOVE]

Planned Outages and unplanned outages on,

1. the Company’s and / or the User’s 33,000 volt switchgear and ancillary equipment at XXXXXXXX Substation;
2. the Company’s and / or the User’s 33,000 volt XXXXXXXX circuit, including any auxiliary circuits, pilot cables and communications links, between XXXXXXXX Substation and XXXXXXXX G.S.P. substation;
3. the Company’s and / or the User’s 33,000 volt switchgear and ancillary equipment in XXXXXXXX G.S.P. substation controlling the XXXXXXXX circuit; and
4. 132/33kV or 275/33kV transformer and/or 33,000 volt busbar in XXXXXXXX G.S.P. substation,

shall require the User’s Connection Point to be De-energised.

It may also be necessary to reduce the output or De-energise the Generating Equipment connected at and beyond the User’s Connection Point, including that of the User’s Customers, for operational requirements of the Distribution System or GB Transmission System. The Company shall not be responsible for any loss deemed by the User or to the User’s Customers to have accrued during such occurrences.

**Part 3 – Connection Boundaries**

The ownership boundary for the main power system assets shall be at the cable termination associated with the Company’s feeder circuit breaker directly supplying the User.

*The following text is for “Option A” connections only, as defined in* SUB-02-013

Within the Company’s substation xxxx, the User shall be provided with a powered freestanding panel in which to install their telecoms and the main protection relay. An asset boundary shall be created on a terminal block within this freestanding panel.

For User’s equipment housed within the Company’s substation xxxx, the Company shall supply the User with Current Transformer (CT) and Voltage Transformer (VT) outputs. The Company shall additionally supply 110 VDC and positively earthed 48 VDC. No voltage or wiring related to these shall leave the Company’s substation feu.

The maximum standing load of the User’s equipment connected to the Company provided DC supplies shall be xxxx Watts.

The Company’s feeder circuit breaker at the interface shall be Company owned and Company operated for all non-protection functions as per Section 6.2 of ENA ER G88. The Company shall also install backup protection on this feeder. The User will send signals to operate the Company owned feeder circuit breaker for main protection and intertrip operations only.

*The following text is for “Option B” connections only, as defined in* SUB-02-013

The Company shall own all protection and telecoms equipment within the Company switchroom and a Protection & Control asset boundary shall be created on the fibre terminals and also on the terminal block for Current Loop signals running to the User’s site. Please refer to drawing in Schedule 1, Part 4 (c).

**Part 4 – Drawings**

(a) Drawing detailing Point of Supply

***UMV screenshot showing Connection Point***

(b) Drawing detailing the proposed geographic extent of the User’s Distribution Network (as planned at the commencement date)

***Requested from the User***

(c) Single line diagram detailing connection to Company’s Distribution Network

***Insert drawing from tech spec showing Protection & Control interfaces***

(d) Single line diagram detailing User’s Distribution Network

***Requested from the User***

# SCHEDULE 2 – USE OF SYSTEM

**Part 1 – Use of System**

The Use of System Charges at the Commencement Date shall be the relevant EHV / HV tariff as notified by the Company in accordance with the Relevant Charging Statement.

The Company has not contributed to the cost of this Connection.

# SCHEDULE 3 – SITE SPECIFIC CONDITIONS

Part 1 – Operational Arrangement for Apparatus at Substation Supply to the User

* 1. **Switching Operations by User’s Personnel on Company Controlled Apparatus**

 Energisation (or any subsequent Re-Energisation) of the Connection Point shall only be performed by the Company’s authorised staff to the direct instructions of the Company’s Control Engineer.

* 1. **Communication with the Control Engineer**

The Company’s staff are on duty at all times in the Company’s Operational Control Centre (OCC). When speaking to the OCC the User’s Representative should identify themselves and the substation they are calling about. Reports should be clear and concise.

The Company’s (OCC) can be contacted on 01698 499123 or such other number as the Company may notify from time to time.

* 1. **Communication with the User’s Engineers**

The User’s engineers may be contacted as detailed in Schedule 8.

Part 2 – Site Specific Technical Conditions

The User connecting to the Distribution System shall comply with the requirements of the Distribution Code. This details the requirements of the User’s plant, the User’s Customer’s plant, and the exchange of data between the User and the Company.

Any Power Station (as defined in the Grid Code) classed as a Large Power Station by the Grid Code shall also meet the requirements of the Grid Code.

Any Generating Equipment (e.g., standby generation) connecting to the Distribution System only for the purpose of routine testing shall comply with the requirements of the Distribution Code. However, such Generating Equipment does not need to meet the additional requirements of Part 1 or 2 of this Schedule but needs to comply with the requirements as per Section 7.3.4. in Engineering Recommendation G99.

All Users and all of the User’s Customers (unless connecting to the Distribution System only for the purpose of routine testing) shall comply with the additional requirements detailed in Part 1 and 2 of this Schedule.

* 1. Constraints

The User has requested and accepted a single connection for the User’s Installation (including the generating plant) to the Distribution System such that the User’s Connection Point is fed via a single 33,000/11,000 volt circuit breaker.

The User acknowledges that in the event of any of the single connection equipment at the Substation (e.g., the 33,000/11,000 volt underground cable, 33,000/11,000 volt circuit breaker or associated protection or auxiliary equipment) being out of service at times of outages, maintenance, fault, extension, repair or during Planned Outages or other times, the User will not be able to export energy onto or import energy from the Distribution System during this period.

The User also acknowledges that in the event of any of the Company’s 33,000/11,000 volt feeder circuit breakers or associated protection or auxiliary equipment at the Substation, or grid transformers being out of service at times of outages, maintenance, fault, extension, repair or during Planned Outages or other times, the User may be required to constrain the export or import of energy (which may be down to zero) onto the Distribution System during this period.

* 1. Network Unavailability Rebates

The User has requested and accepted an independent, unfirm connection to the Distribution System and as such the network unavailability rebate will be zero. Details of the Company's policy regarding rebates can be found in the Company's Methodology Statement detailing the Basis of Use of System Charges of the Electricity Distribution Licence, as published from time to time.

* 1. Compliance with Standards

It is a condition of Connection that the User’s Installation will not have a detrimental effect on the stability of the Distribution System and will not cause voltage steps, harmonics or other disturbances outside the values laid down in the Grid Code and the Engineering Recommendations: G99 – ‘Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019’, P28 – ‘Voltage fluctuations and the connection of disturbing equipment to transmission systems and distribution networks in the United Kingdom'; G5 – ‘Harmonic voltage distortion and the connection of harmonic sources and/or resonant plant to transmission systems and distribution networks in the United Kingdom’; P29 – ’Planning Limits for Voltage Unbalance in the United Kingdom‘ and G100 – ‘Technical Requirements for Customers’ Export and Import Limitation Schemes’.

The User is responsible for all aspects of G99 / P28 / G5 / P29 / G100 compliance in relation to the Connection, including compliance within the Company’s network.

* 1. Behaviour during Network Faults

It is a condition of Connection that the User’s Installation shall not adversely affect the security and quality of supply to existing Users during transient faults on the Transmission and Distribution System. To ensure these requirements are met, it is normal industry practice to carry out system studies to determine the effect of connecting the User’s Installation to the Distribution System. If these studies have not been carried out due to the User’s failure to provide a comprehensive static and dynamic model of the User’s Installation, then should additional works be required to enable the User’s Installation to conform to the standards specified above, it will be the User’s responsibility to fund the whole cost of any additional cost and expenses that the Company may incur as a result.

* 1. Protection

The User shall ensure that the User’s Customers comply with Section 10 of EREC G99. The User’s Customers shall install EREC G99 protection to trip their generator breaker in the event of loss of mains supplies. The EREC G99 settings shall be agreed with the Company before the generator is energised and shall not be subsequently changed without the agreement of the Company in writing.

Immediately following the Connection of the User's Installation, the User shall make available a significant percentage of the Maximum Import/Export Capacity, to be determined by the Company, for the purpose of proving the stability of the new protection system. The commissioning load for this Connection will be a minimum of XXXX amps at 33,000/11,000 volts.

* 1. Protection for 33,000 volt Circuits (delete as necessary)

 For multi-phase and earth faults the main protection, which initiates fault clearance by a switching device, shall operate in less than 100 milliseconds. This is to achieve a total fault clearance time from fault inception to arc extinction of 200 milliseconds. On feeder circuits the target for the maximum clearance time of back-up protection that initiates fault clearance by a switching device shall be 750 milliseconds.

* 1. Protection for 11,000 volt Circuits (delete as necessary)

For multi-phase and earth faults, the main protection, which initiates fault clearance by a switching device, shall operate in less than 500 milliseconds. This is to achieve a total fault clearance time from fault inception to arc extinction of less than 600 milliseconds. On feeder circuits the target for the maximum clearance time of back-up protection that initiates fault clearance by a switching device shall be less than 1,500 milliseconds.

Part 3 – Technical Conditions

The implementation and testing of ENA EREC G99 and ENA EREC G100 protection for generators and electrical storage systems connected to the User’s system shall be the responsibility of the User. However, the User shall be capable of providing evidence to the Company of G99 / P28 / G5 / P29 / G100 compliance for any of the User’s Customers.

For compatibility with the Company’s power system, all G99 generation connected to the User’s system shall be connected in “voltage control mode” in accordance with the table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Type A** | **Type B** | **Type C** | **Type D** |
|  |  | Synchronous | Asynchronous | Synchronous | Asynchronous | Synchronous | Asynchronous |
| Technical Requirements | G99 Chapter 11 | G99 Chapter 12 | G99 Chapter 12 | G99 Chapter 13 | G99 Chapter 13 | G99 Chapter 13 | G99 Chapter 13 |
| Technical Requirements (Large Power Stations) |  |  |  | Grid Code Connection Conditions |
| Exemptions | G99 Annex A.4 |
| Compliance Testing, Commissioning and Notification Process | G99 Chapter 16 | G99 Chapter 17 | G99 Chapter 17 | G99 Chapter 18 | G99 Chapter 18 | G99 Chapter 19 | G99 Chapter 19 |
| Ongoing Obligations | G99 Chapter 20 | G99 Chapter 20 | G99 Chapter 20 | G99 Chapter 20 | G99 Chapter 20 | G99 Chapter 20 | G99 Chapter 20 |
| Plant Performance Requirements |  | G99 Section 12.1 | G99 Section 12.1 | G99 Section 13.1 | G99 Section 13.1 | G99 Section 13.1 | G99 Section 13.1 |
| Frequency response |  | G99 Section 12.2 | G99 Section 12.2 | G99 Section 13.2 | G99 Section 13.2 | G99 Section 13.2 | G99 Section 13.2 |
| Fault Ride Through |  | G99 Section 12.3 | G99 Section 12.3 | G99 Section 13.3 | G99 Section 13.3 | G99 Section 13.3 | G99 Section 13.3 |
|  | G99 Figure 12.4 and Table 12.1 for Synchronous generators | G99 Figure 12.5 and Table 12.2 for Asynchronous generators | G99 Figure 13.7 and Table 13.3 for Synchronous generators | G99 Figure 13.9 and Table 13.5 for Asynchronous generators | G99 Figure 13.7 and Table 13.3 for Synchronous generators | G99 Figure 13.9 and Table 13.5 for Asynchronous generators |
| Voltage Limits and Control |  | G99 Section 12.4 | G99 Section 12.4 | G99 Section 13.4 | G99 Section 13.4 | G99 Section 13.4 | G99 Section 13.4 |
|  | G99 Section 12.4.3.3\* | G99 Section 12.4.3.3# | G99 Section 13.4.5\* | G99 Section 13.4.5# | G99 Section 13.4.5\* | G99 Section 13.4.5# |
| Transient Voltage Control |  |  |  | G99 Annex C.4 | G99 Annex C.5 | G99 Annex C.4 | G99 Annex C.5 |
| Reactive Capability |  | G99 Section 12.5 | G99 Section 12.5 | G99 Section 13.5 | G99 Section 13.5 | G99 Section 13.5 | G99 Section 13.5 |
|  |  |  | G99 Figure 13.11 | G99 Figures 13.13 and 13.14 | G99 Figure 13.11 | G99 Figures 13.13 and 13.14 |
| Fast Fault Current Injection |  | G99 Section 12.6 | G99 Section 12.6 | G99 Section 13.6 | G99 Section 13.6 | G99 Section 13.6 | G99 Section 13.6 |
|  |  | G99 Figures 12.6 and 12.7(a) or (b) |  | G99 Figures 13.15 and 13.16(a) or (b) |  | G99 Figures 13.15 and 13.16(a) or (b) |
| Black Start Capability |  |  |  | G99 Section 13.7 | G99 Section 13.7 | G99 Section 13.7 | G99 Section 13.7 |
| Operational Monitoring |  | G99 Section 12.7 | G99 Section 12.7 | G99 Section 13.9 | G99 Section 13.9 | G99 Section 13.9 | G99 Section 13.9 |

\*Synchronous generators shall provide voltage control at their terminals

#Asynchronous generators shall provide voltage control at the connection point

\*#Default voltage control settings 3% slope and 1.02pu voltage set point.

\*#The Company may request an alternative settings mode of operation. On receiving such a request, the User shall implement the required settings or mode.

**Part 4 – Ownership and Responsibility of Buildings, Plant and Equipment**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **OWNED BY** | **MAINTAINED BY** | **AT COST****OF** |
| CONNECTION ACCOMMODATION | [ XXX ] | [ XXX ] | [ XXX ] |
| The Connection Accommodation shall be secure, watertight and weather-proof accommodation for the Company’s Connection equipment. The Company’s decision shall be final in regard to the suitability of the Connection Accommodation.Generally, all 3 fields will always be the Company. However, there may be edge cases where kiosks need to be created, in which case this should normally be the User. |

**Part 5 – Schedule of Responsibility for Apparatus at Connection to Embedded Licensed Distribution Network**

Update table for each site as required by Option A or Option B.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EHV / HV APPARATUS**  | **Owned** **By** | **Safety Management System** | **Controlled****By** | **Operated** **By** | **Maintained** **By** |
| **HV/EHV Equipment***Company’s HV/EHV [XXXX] volt switchboard* | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |
| **CABLES***[XXXX] volt power and auxiliary cables from Company’s HV/EHV [XXXX] volt switchboard to the Company’s [XXXX] volt cable joint* | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |
| **CABLES** *Telecommunications cables from Company’s network to the fibre terminals and the terminal signals for Current Loop converters* | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |
| ***NON-COMPANY ASSETS*** *– [XXXX] volt incoming power and auxiliary cables from User’s network to Company’s [XXXX] volt switchboard and telecommunications cables from the fibre outgoing terminals and the terminal block for Current Loop converters.* | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] | [ XXX ] |

Part 6 – Consents (Servitudes and Wayleaves)

The Company and the User acknowledge that the User was to procure servitudes/wayleaves for the route(s) of the Company’s electric lines (whether underground cabled or overhead wires), within the site boundary, used to provide the connection covered by these electric lines. Such route(s) shall be so preserved by the User that damage shall not be caused to the electric lines.

The User also requires to procure for the Company, in a form acceptable to the Company acting reasonably, registered real rights that would allow the Company to repair, replace, alter or maintain the Company’s apparatus within the User’s Premises.

**SCHEDULE 4 – GENERATION**

Part 1 – Distributed Generation Connected to User’s Distribution System

Repeat table for each technology type / array connected to the IDNO’s system, as appropriate. If no generation enter N/A. Max / min demand is only required for BESS units.

|  |  |  |
| --- | --- | --- |
| Generation Unit Data | Unit |  |
| Number of identical units | No | [XX] |
| Prime Mover | Text | [XX] |
| Electrical Machine Type | Text | [XX] |
| Machine Rating | kVA/kW | [XX] |
| Rated terminal voltage | V | [XX] |
| Rated Power Factor at machine terminals | ---  | [XX] |
| Maximum Generation (per unit) | kW | [XX] |
| Minimum Generation (per unit) | kW | [XX] |
| Maximum Demand (per unit) | kW | [XX] |
| Minimum Demand (per unit) | kW | [XX] |
| Generator Transformer Data |   |   |
| Number of identical units | No | [XX] |
| Rated Capacity | MVA | [XX] |
| Positive sequence reactance (% on rated MVA) | % | [XX] |

The connection to the Company’s Distribution System has been designed on the basis that the User’s Customer’s apparatus contributes a maximum prospective fault current at the Connection Point of:

* [XX] kA @ [XX] kV 3ph Asymmetrical Peak (Ip) @ 10ms
* [XX] kA @ [XX] kV 3ph Initial Symmetrical RMS (Ik’’)
* [XX] kA @ [XX] kV 3ph Symmetrical RMS (Ik) @ 90ms

The new connection should not have a detrimental effect on the stability of the distribution system and should not cause voltage steps, harmonics or other disturbances on the Company’s system outside the values laid down in the relevant documents.

It is also a condition of connection that the installation rides through transient faults on the upstream distribution or transmission system without affecting the security and quality of supply to existing customers.

**Part 2 – Power Factor / Voltage Control**

**(INCLUDE POWER FACTOR SPECIFIED IN THE OFFER FOR THIS SECTION IF THERE IS A RESTRICTION FOR IT IN THE OFFER)**

The parties agree:

***When importing:***

The Customer shall at all times maintain the Power Factor of any supply of electricity taken by the Customer at or as near to unity as practicable and in any case between unity and 0.9 Power Factor lagging.

*When importing*: (replace above text if connection agreement is for a BESS site)

The Customer shall at all times assist in maintaining the Voltage of any supply of electricity supplied by the Customer at or as near to 1.0 per unit at the Connection Point (or other voltage specified by the Company within the range of 0.95pu to 1.05pu) as practicable as long as this does not require the MVAR output to exceed the range required by Schedule 3. The Customer shall comply at its own expense with such requirements as the Company may make to ensure that the required Power Factor is available.

***When exporting:***

The Customer shall at all times assist in maintaining the Voltage of any supply of electricity supplied by the Customer at or as near to 1.0 per unit at the Connection Point (or other voltage specified by the Company within the range of 0.95pu to 1.05pu) as practicable as long as this does not require the MVAR output to exceed the range required by Schedule 3. The Customer shall comply at its own expense with such requirements as the Company may make to ensure that the required Power Factor is available.

**Part 3 – Measurement Data**

The following will be provided by the User at each Connection Point for input to the Company’s communications system.

**Analogues**

* MW and MVAr import / export per Generator technology type (>1 MW) connected to the User’s system, as per ESDD-01-005 published on the Company’s website.

Include table from NESO offer if additional requirements are placed on the connection. These are referred to as the ECC6.4.4. signals in SUB-02-013.

**Part 4 – Exclusion and Limitations of Liability for Distributed Generation Unavailability Payment**

The User acknowledges and accepts a connection which is subject to the restrictions Outages and constraints referred to in this Agreement, and that it is not entitled under the provisions of this Agreement or otherwise to the payment of compensation from the Company in respect of any such restriction Outage or constraint unless otherwise agreed by the parties in writing pursuant to clause 15.4 of Section 3 of the National Terms of Connection.

In the event that the Company has (under the provisions of any other agreement or legislation or arrangement of any kind) to make a payment in respect of such restriction outage or constraint to the User (or to any other person and the User, directly or indirectly, receives any such payment or part of it) then the User shall refund the same to the Company and the Agreement shall contain specific details to this effect.

# SCHEDULE 5 – MODIFICATION APPLICATION

|  |  |
| --- | --- |
| Name of Applicant: |  |
| Address of Applicant: |  |
| Telephone Number: |  |
| Details of Modification required and reasons for same: |  |

Please attach Location Plan identifying any proposed intake position.

|  |  |
| --- | --- |
| Proposed Date of Connection: |  |
| Preferred Supply Voltage (EHV / HV / LV): |  |
| Type of Supply(Single Phase / Three Phase): |  |
| Maximum Distribution Capacity required (kVA/kW): |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Maximum Demand: | Winter | Summer |  |
| Weekday | Weekend | Weekday | Weekend |
| Present / Initial | Day |  |  |  |  | kW/kVA |
| Night |  |  |  |  | kW/kVA |
| Future | Day  |  |  |  |  | kW/kVA |
| Night |  |  |  |  | kW/kVA |

|  |  |
| --- | --- |
| Estimated Annual Consumption: |  |
| Estimated Power Factor:* + 1. Average
		2. At Max Demand
 |  |
| Details of any Abnormal Loads:(e.g., large motors, welding equipment, harmonic content) |  |
| Maximum Instantaneous Current: (e.g., starting current of largest motor) |  |
| Frequency Starting: (single, switched firm, automatic firm) |  |
| Will any electricity generating equipment be connected to the User’s Distribution Network?If YES:1. Please provide details on separate form / sheet
2. Will the generator(s) be run in parallel with the distribution system?
 |  |
| Any other information considered by the Applicant to be relevant. |  |

 Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 On Behalf of: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The completed form should be sent to the following address:

DCUSA Contract Manager

SP Distribution PLC

Scottish Power HQ

320 St Vincent Street

Glasgow

G2 5AD

# SCHEDULE 6 – CURTAILABLE CONNECTIONS

**Part 1 – Details of Curtailable Connections connected to the user’s system.**

Include details here or N/A

**Part 2 – Details of the Technical Requirements to instruct curtailment to user**

Include details here or N/A

**Part 3 – Agreed Alternatives to Curtailment**

Include details here or N/A

# SCHEDULE 7 – REQUIRED INFORMATION

1. At the Commencement Date, drawings showing the location and geographical extent of the User’s Distribution Network. These drawings should be maintained and updated by the User as appropriate if there are material changes and the User shall provide reasonable notice to the Company of proposed material expansion of the geographical extent of the User’s Distribution Network.
2. Core MPANs and addresses of all the User’s Customers Connected to the User’s Distribution Network, which will be provided by the User to the Company electronically in an agreed format on a quarterly basis except where the Company, acting reasonably, notifies the User that such information is to be provided by the User more frequently.
3. Contact details for the User detailed in Schedule 8 Part 2 shall be maintained and updated by the User as required.

# SCHEDULE 8 – NOTICES AND CONTACT DETAILS

**Part 1 – Addresses for Service of Notices**

The Company’s address for the serving of notices is:

DCUSA Contract Manager

SP Distribution PLC

Scottish Power HQ

320 St Vincent Street

Glasgow

G2 5AD

The User’s address for the serving of notices is:

Name: [ XXXX ]

Address: [XXXX]

**Part 2 – Contact Details**

|  |  |
| --- | --- |
| **Security Restriction Notices (Risk to Security of Supply)** | [ XXX ] |
|  |
| **Control Engineers / Authorised Persons** | Control Room | [ XXX ] |
| Control Emergencies | [ XXX ] |
| Control/Planning Correspondence | [ XXX ] |
| Operational Planning | [ XXX ] |
| No Supply | [ XXX ] |
| Networks Operations & Maintenance | [ XXX ] |
| Operation & Maintenance Correspondence | [ XXX ] |
|  |
| **Address for receipt of DUoS Invoices** | [ XXX ] |
|  |
| **Contact Telephone Numbers to be passed to individual customers who may contact the Company in error** | No Supply, Cable Damage, Network Safety Issue etc. | [ XXX ] |
| Other Enquiries, e.g., Load Increases, Service Alterations | [ XXX ] |