SP Distribution Plc

and

[XXXX]

AGREEMENT FOR CONNECTION TO THE DISTRIBUTION SYSTEM
(Where the customer has generating plant and uses the Distribution System for importing or exporting energy)

RELATING TO [Substation Name and Address]

AGREEMENT FOR CONNECTION TO THE DISTRIBUTION SYSTEM

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"); and

(2) [XXXX] a company registered in [XXXX] with the registered number [XXXX] whose registered office is at [XXXX] ("the Customer")

WHEREAS

A The Company is authorised by a licence granted under the Act to carry on the business of the distribution of electricity and under the terms of that licence is required (except in certain circumstances specified in that licence) to offer to enter into an agreement for connection to the Distribution System by any person requesting the same, subject to payment by the Customer of an appropriate charge.

B The Customer has made such request to the Company for Connection.

NOW THEREFORE the Parties HAVE AGREED AND DO HEREBY AGREE as follows:

1. The Company agrees to the Connection of the Customer's Installation to the Company's Distribution System on the terms and conditions of this Bespoke Connection Agreement.

2. Subject to the express provisions of this Bespoke Connection Agreement, Section 3 of the National Terms of Connection (the "Applicable NTC Section") will apply as if it was set out in this Bespoke Connection Agreement, and as if references in the Applicable NTC Section to "this agreement" or to "this Agreement" were to this Bespoke Connection Agreement.

3. The National Terms of Connection are available in writing from the Energy Networks Association, 4 More London Riverside, London, SE1 2AU, or from the website at www.connectionterms.co.uk.

4. The Customer's attention is drawn specifically to the Applicable NTC Section, and the Customer confirms that it has read and fully understands the Applicable NTC Section.

5. Expressions used in this Bespoke Connection Agreement shall have the same meanings as is given to them in the Applicable NTC Section.

6. Details of the Premises, the Connection Points, the technical characteristics of the Connection Points and other matters are set out in the Appendices to this Bespoke Connection Agreement.

7. Both parties agree to comply with and be bound by the provisions of the Appendices to this Bespoke Connection Agreement.

8. The Parties may agree variations to this Bespoke Connection Agreement, which variations must be recorded in writing and signed by an authorised representative of each Party. Each Party shall negotiate in good faith the terms of any variation proposed by the other. If any variation has not been agreed within 1 month of its being proposed, either Party may refer the matter to the Authority for resolution pursuant to section 23 of the Act. The Parties shall give effect to any such determination, and shall enter into any agreement as shall be necessary to give effect to any such determination.

9. Address for notices

(a) for the Company:	(b) for the Customer:
DCUSA Contract Manager SP Distribution PLC Scottish Power HQ 320 St Vincent Street Glasgow G2 5AD	Company Secretary, [XXXX]

IN WITNESS WHEREOF these typewritten presents on this and the 2 preceding pages, together with the Conditions and the two Appendices annexed hereto are executed as follows:

SIGNED at ..... on the..... day of .....20....
for and on behalf of SP Distribution Plc

by.....
Authorised Signatory

SIGNED at ..... on the..... day of .....20....
for and on behalf of SP Distribution Plc

by.....
Authorised Signatory

SIGNED at ..... on the..... day of .....20....

for and on behalf of the Customer

by .....
duly authorised on their behalf before the witness hereto
subscribing whose name and address are appended to their signature:-

.....

Witness: .....

Name: .....

Address: .....

.....

.....

THESE ARE THE APPENDICES REFERRED TO IN THE FOREGOING AGREEMENT BETWEEN THE COMPANY AND THE CUSTOMER

APPENDIX 1 – GENERAL PARTICULARS OF THE CONNECTION

1. CONNECTION CHARGES

These comprise the Connection Charges and (if applicable) the Use of System Charges:

Connection Charge	The total charge for the Company's Works as specified in the Offer Letter, dated [DD/MM/YYYY], is £ [XXXX], ([XXX] million, [XXXX] hundred and [XXXX] thousand, [XXXX] hundred and [XXXX] pounds) plus VAT at the appropriate rate. The connection charge must be paid in full before the connection of the Customer's Installation can be made and energised. The initial Connection Charge may be subject to review in the manner set out in the Offer Letter for the connection made to and accepted by the Customer.
Use of System Charges	Such charges will be calculated in accordance with the Company's Statement of Use of System Charges for the time being in force and issued pursuant to Condition 14 of the Electricity Distribution Licence. So far as Use of System Charges are concerned, where another person is paying the charges for the import or export from the site, the Customer shall not be liable for such charges.

2. LOSS ADJUSTMENT FACTOR

The Customer acknowledges and accepts that in signing this Agreement a site-specific loss adjustment factor is being requested from the Company. The Company shall calculate the site-specific loss adjustment factor in accordance with its Methodology Statement for Use of System Charges. It is a condition of the connection of the Customer's Installation that a site-specific loss adjustment factor is in place.

3. SUPPLY CHARACTERISTICS

Except as set out in paragraph 2 below, the characteristics of the connection(s) shall be as follows:

(a) Characteristics of supply:

(i) Number of Phases	[Number]
(ii) Current	[Alternating current]
(iii) Voltage	[33,000/11,000] Volts
(iv) Frequency	50 Hertz

(b) Connection Point(s):

Where connection is provided from the Company's final cut-out fuse, isolator, switch, metering switch fuse or metering circuit breaker, unless otherwise stated in this Bespoke Connection

Agreement the Connection Points are the outgoing terminals of the Company's final cut-out fuse, isolator, switch, metering switch fuse or metering circuit breaker.

For the avoidance of doubt, the Connection Points may be remote from the Customer's Installation where third party electric lines and/or electric plant provide the intermediate electrical connection from the Company's Distribution System to the Customer's Installation.

4. DETAILS OF PREMISES

(a)	Address	[SITE ADDRESS HERE]
	Import MPAN/MSID	[IMPORT MPANS/MSID HERE]
	Export MPAN/MSID	[EXPORT MPANS/MSID HERE]
(b)	Commencement Date	[COMMENCEMENT DATE DD/MM/YYYY HERE]
(c)	Maximum Import Capacity (Unfirm)	[XX] kW ([XX] kVA) With effect from : [DD/MM/YYYY]
	Maximum Export Capacity (Unfirm)	[XX] kW ([XX] kVA) With effect from : [DD/MM/YYYY]

5. POWER FACTOR

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: [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 Appendix 2. 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 Appendix 2. 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.

6. SPECIAL AUTOMATIC FACILITIES

An emergency trip facility connected to the Company's metering [33,000/11,000] volt switchgear for use by the Customer. The emergency trip facility will be installed at an agreed location.

7. COMMUNICATIONS EQUIPMENT AND DATA REQUIREMENTS

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

Analogues

- Total generated MW per Connection Point
- MW, MVAr, Amps, Volts (kV) and frequency (0.01Hz precision) per Connection Point
- Anemometer reading of wind speed and wind direction for any turbine or cluster of turbines

Indications

- Double point circuit breaker indication contacts (i.e. one open, one closed) shall be provided for the Customer's main [33,000 / 11,000] volt circuit breaker on the Customer's installation.

8. GENERATING PLANT

GENERATING UNIT DATA	UNIT	
Number of identical units to which this data applies	No	
Prime Mover	Text	
Electrical Machine type	Text	
Machine Rating	kVA kW	
Rated terminal voltage	V	
Rated Power factor at machine terminals	---	
Maximum Generation (per unit)	kW	
Minimum Generation (per unit)	kW	
Maximum Demand (per unit)	kW	
Minimum Demand (per unit)	kW	
GENERATOR TRANSFORMER DATA	UNIT	
Rated Capacity	MVA	
Positive sequence reactance (% on rated MVA)	%	

9. MAXIMUM FAULT CONTRIBUTION FROM GENERATOR

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

- [XX]kA @ 33kV 3ph Symmetrical RMS (Ik) @ 90mS
- [XX]kA @ 33kV 3ph Asymmetrical Peak (Ip) @ 10mS

10. SECURITY OF SUPPLY

It should be noted that the proposed method of connection for the Customer's Installation is based on a system analysis with a Maximum [Export/Import] Capacity (Unfirm) of [XX] kW onto a single [33,000 / 11,000] volt metered Connection Point. The Connection Point shall be connected to the Distribution System by a single radial circuit originating from [XX] Grid Supply Point [G.S.P.] substation (Refer to Circuit Diagram).

[If applicable]
[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.]

Planned Outages and unplanned outages on,

a) the Company's 33,000 volt switchgear and ancillary equipment at [XX] Substation;
b) the Company's 33,000 volt [XX] circuit and auxiliary cable circuit, between [XX] Substation and [XX] G.S.P. substation;
c) the Company's 33,000 volt switchgear and ancillary equipment in [XX] G.S.P. substation controlling the [XX] circuit; and
d) the Company's, [Grid T1 / T2], 33,000 volt busbar in [XX] G.S.P. substation,

shall require the Connection Point to be De-energised.

It may also be necessary to reduce the output of, or De-energise the Generating Equipment for operational requirements of the Distribution System or GB Transmission System. The Company shall not be responsible for any loss deemed by the Customer to have accrued during such occurrences.

CIRCUIT DIAGRAM

APPENDIX 2 – TECHNICAL CONDITIONS

The Customer connecting to the Distribution System shall comply with the requirements of the Distribution Code. This details the requirements of the Customer's plant, and the exchange of data between the Customer 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 Appendix but needs to comply with the requirements as per Section 7.3.4. in Engineering Recommendation G99 ("EREC G99").

All 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 Appendix.

PART 1 – SITE SPECIFIC TECHNICAL CONDITIONS

1.1. Constraints

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

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 any restriction, outage or constraint to the Customer (or to any other person and the Customer, directly or indirectly, receives any such payment or part of it) then the Customer shall refund the same to the Company.

The Customer 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 metered 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 Customer will not be able to export energy onto [or import energy] from the Distribution System during this period.

The Customer also acknowledges that in the event of any of the Company [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 Customer may be required to constrain the export [or import] of energy (which may be down to zero) onto the Distribution System during this period.

1.2. Network Unavailability Rebates

The Customer 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.

1.3. Compliance with Standards

It is a condition of Connection that the Customer'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: G5/5 – 'Harmonic voltage distortion and the connection of harmonic sources and/or resonant plant to transmission systems and distribution networks in the United Kingdom'; P28 – 'Voltage fluctuations and the connection of disturbing equipment to transmission systems and distribution networks in the United Kingdom'.

1.4. Behaviour during Network Faults

It is a condition of Connection that the Customer's Installation shall not adversely affect the security and quality of supply to existing customers 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 Customer's Installation to the Distribution System. If these studies have not been carried out due to the Customer's failure to provide a comprehensive static and dynamic model of the Customer's Installation, then should additional works be required to enable the Customer's Installation to conform to the standards specified above, it will be the Customer's responsibility to fund the whole cost of any additional cost and expenses that the Company may incur as a result.

1.5. Protection

The Customer shall comply with Section 10 of EREC G99. The Customer 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 Customer's Installation, the Customer 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 [XX] amps at [33,000/11,000] volts.

1.6. [Protection for 33,000 volt Circuits (if applicable)

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.]

1.7. [Protection for 11,000 volt Circuits (if applicable)

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 2 – TECHNICAL CONDITIONS

	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 13.15(a) and (b)	G99 Figures 13.15(a) and (b)	G99 Figures 13.15(a) and (b)	G99 Figures 13.15(a) and (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 Customer shall implement the required settings or mode.

NB: G99 refers to EREC G99 document Issued by ENA

PART 3 – COMMUNICATION CHANNELS AND AUTHORISED PERSONS

Communication Channels	
For the Company:	For the Customer:
DCUSA Contract Manager SP Distribution PLC Scottish Power HQ 320 St Vincent Street Glasgow G2 5AD	[XXXX] Tel: [XXXX]
Authorised Persons:	
For the Company:	For the Customer:
As above	As above