

## ACTIVE NETWORK MANAGEMENT CONNECTION AGREEMENT

<b>THIS AGREEMENT</b> is made the		<b>123</b>	day of	<b>Month</b>	2018
Between:	<b>Western Power Distribution (xxxxxx) plc</b> Registered in England and Wales No. 12345678 Whose <b>REGISTERED OFFICE</b> is at Avonbank Feeder Road Bristol BS2 0TB (The "Company")				
And	Any Company Ltd Registered in England & Wales No 123456 Any Street Any Town Any County Any Postcode (The "Customer")				
Concerning the Customer's Premises known as	Any Company Ltd Registered in England & Wales No 123456 Any Street Any Town Any County Any Postcode				
Address for Notices	Any Company Ltd Registered in England & Wales No 123456 Any Street Any Town Any County Any Postcode		<b>Western Power Distribution (xxxxxx) plc</b> Avonbank Feeder Road Bristol BS2 0TB		

The Company and the Customer shall together be referred to as the "Parties" and each a "Party".

This agreement (excluding the schedules to this agreement) shall be referred to as the "Agreement", the schedules to the Agreement shall be referred to as the "Schedules". The Agreement, the Schedules, and the National Terms of Connection shall together be referred to as the "Connection Agreement".

The National Terms of Connection are available to view on the website: [www.connectionterms.co.uk](http://www.connectionterms.co.uk). Alternatively the Customer may request a copy of the National Terms of Connection from the Company by written request to the address for notices given above. The Customer confirms that they have read, fully understand and accept the terms of the National Terms of Connection.

Subject to the express provisions of the Agreement or the Schedules:

- (a) Section 1 and either Section 2 (if the Customer uses whole current metering), Section 3 (if the Customer uses C.T. metering) or Section 3 (if the Customer has an unmetered supply) of the National Terms of Connection will apply as if set out in this Agreement;
- (b) references in the National Terms of Connection to "this agreement" or to "this Agreement" shall be interpreted as if references to this Connection Agreement; and

- (c) expressions used in this Agreement and the Schedules shall have the same meanings as given to them in the National Terms of Connection.

Details of the Premises, the Connection Points, the technical characteristics of the Connection Points and other matters are set out in the Schedules.

The Company agrees to Connect the Customer's Installation to the Company's Distribution System on the terms and conditions of this Connection Agreement and in consideration of the Company's agreement to do so the Customer agrees to be bound contractually by the terms and conditions of this Connection Agreement.

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

## 1. DEFINITION, INTERPRETATION AND CONSTRUCTION

- 1.1. In the event of any conflict between the terms of this Agreement, the Schedules or the National Terms of Connection, the documents shall have the following order of priority (in descending order):
- (a) the terms of this Agreement;
  - (b) the Schedules; and
  - (c) the National Terms of Connection.
- 1.2. This Connection Agreement constitutes the entire agreement between the Parties in relation to the Premises. Each Party acknowledges that it has not entered into this Connection Agreement on the basis of, and has not relied on, any statement, representation, warranty, promise or term made or agreed to by any Party, (whether a Party to this agreement or not) except those expressly written out in full in this Connection Agreement. Neither Party shall have any liability in respect of any other representation, warranty or promise made prior to the date of this Connection Agreement unless it was made fraudulently.
- 1.3. This Connection Agreement may be executed in any number of counterparts and by the Parties on separate counterparts, but shall not be effective until each Party has executed at least one counterpart. Each counterpart, when executed, shall be an original of this Connection Agreement and all counterparts shall together constitute one instrument.
- 1.4. Subject to clause 1.5, any variation to this Connection Agreement shall be in writing and signed by authorised signatories for the Parties.
- 1.5. Each Party shall effect any amendments required as a result of a change in the Electricity Distribution Licence or any Applicable Legislation and the Customer hereby authorises and instructs the Company to make any such amendment on its behalf and undertakes not to withdraw, qualify or revoke such authority or instruction at any time.
- 1.6. The following terms and expressions shall have the meaning set out below:

Adjusted Export Capacity	Has the meaning ascribed to it in Clause 3.2 of this Agreement
Adjusted Import Capacity	Has the meaning ascribed to it in Clause 3.2 of this Agreement
ANM Scheme	Means the overall active network management scheme including but without limitation the Company's Control Equipment.
Annual	Means the charge payable annually by the Customer (in accordance with clause

Alternative Connection Charge	6.4) for the amount specified in clause 3.8(c) of this Agreement.
Applicable Legislation	Means all laws, statutes, statutory instruments, acts, regulations, codes, judgements, orders, directives or determinations which affect the Electricity Distribution Licence or the performance of any of the Company's obligations under the Connection Agreement.
Company's Control Equipment	Means the equipment and technical specification set out in Schedule 5
Curtail	Means: (a) to limit from time to time the maximum amount of electricity that may flow from the Distribution System through the Connection Point; or (b) to limit from time to time the maximum amount of electricity that may flow to the Distribution System through the Connection Point; or (c) in respect of the flow of electricity from the Company's Distribution System to the Customer's Installation to require this to be at a particular Power Factor or to be within a particular range of Power Factors; or (d) in respect of the flow of electricity from the Customer's Installation to the Company's Distribution System to require this to be at a particular Power Factor or to be within a particular range of Power Factors; for the purpose of active network management, 'Curtailed' and 'Curtailedment' shall be construed accordingly.
Instruction	Means an instruction given by the Company to the Customer via the Company Control Equipment or verbally or in written form in order to undertake Curtailedment in accordance with clause 2 of this Agreement.
Protected Export Capacity	Means in respect of a Connection Point (or Connection Points collectively) an amount of electricity (expressed in kVA) which shall not exceed the Maximum Export Capacity that the Customer is entitled to pass into the Distribution System through the Connection Point (or the Connection Points Collectively) subject to the National Terms of Connection, which the Company shall not intentionally interrupt for active network management purposes. The value of the Protected Export Capacity is described in Schedule 1. For the avoidance of doubt, the use of the term 'Protected' in this Agreement does not mean that provision of the capacity is resilient to a loss of one or more Connection Points.
Protected Import Capacity	Means in respect of a Connection Point (or Connection Points collectively) an amount of electricity (expressed in kVA) which shall not exceed the Maximum Import Capacity that the Customer is entitled to take from the Distribution System through the Connection Point (or the Connection Points Collectively) subject to the National Terms of Connection, which the Company shall not intentionally interrupt for active network management purposes. The value of the Protected Import Capacity is described in Schedule 1. For the avoidance of doubt, the use of the term 'Protected' in this Agreement does not mean that provision of the capacity is resilient to a loss of one or more Connection Points.

## 2. MAXIMUM CAPACITY, POWER FACTOR AND DEFINED INTERRUPTIBILITY

2.1. In addition to the Company's rights of curtailment under Schedule 5, and notwithstanding Clause 12 of Section 3 or Clause 13 of Section 4 (as appropriate) of the National Terms of Connection – 'Limitation of Capacity' (where incorporated into this Connection Agreement), the Company shall be entitled (at no cost to the Company) to Instruct the Curtailedment of the flow of electricity through the Connection Point in accordance with clause 2.2 in the event that:

- (a) the Protected Import Capacity is less than the Maximum Import Capacity; and/or
  - (b) the Protected Export Capacity is less than the Maximum Export Capacity.
- 2.2. Subject to clause 2.1 , the Company shall be entitled to issue an Instruction to:
- (a) specify a level of import capacity expressed in kVA ('Adjusted Import Capacity'), which may not be greater than the Maximum Import Capacity, provided that the Adjusted Import Capacity shall not be less than the level of the Protected Import Capacity;
  - (b) specify a level of export capacity expressed in kVA ('Adjusted Export Capacity'), which may not be greater than the Maximum Export Capacity, provided that the Adjusted Export Capacity shall not be less than the level of the Protected Export Capacity;
  - (c) specify a particular Power Factor, or a particular range of Power Factors, for any flow of electricity from the Company's Distribution System to the Customer's Installation; and
  - (d) specify a particular Power Factor, or a particular range of Power Factors, for any flow of electricity from the Customer's Installation to the Company's Distribution System.
- 2.3. Upon receipt from the Company of an Instruction in accordance with clause 2.2 above and for so long as this Instruction remains in force, the Customer shall not whether by act or omission:
- (a) cause or permit the flow of electricity from the Company's Distribution System to the Customer's Installation to exceed the Adjusted Import Capacity;
  - (b) cause or permit the flow of electricity from the Customer's Installation to the Company's Distribution System to exceed the Adjusted Export Capacity;
  - (c) cause or permit the flow of electricity from the Company's Distribution System to the Customer's Installation at a Power Factor other than that instructed; or
  - (d) cause or permit the flow of electricity from the Customer's Installation to the Company's Distribution System at a Power Factor other than that instructed.
- 2.4. Upon receipt from the Company's Control Equipment of an Instruction to limit the maximum amount of electricity that may flow from or to the Distribution System through the Connection Point in accordance with clauses 2.2 and 2.3 above, the Customer shall respond to the Instruction within **x** Seconds unless otherwise agreed with the Company in writing.
- 2.5. If the Customer fails to comply with clauses 2.3 and 2.4 above, the Company shall be entitled to De-energise the Connection Point and the Customer's Installation or Curtail the flow of electricity through the Connection Point as is appropriate.
- 2.6. Without prejudice to the Company's rights of curtailment and De-energisation set out in Schedule 5, the magnitude and/or duration of Curtailment in accordance with Clauses 2.2 and 2.3 of this Agreement shall be no longer than, in the reasonable opinion of the Company, is appropriate in the circumstances and the Company shall cease Curtailment as soon as reasonably practicable after the circumstances leading to the Curtailment have ceased to exist.

2.7. Subject to the terms of this Connection Agreement (including clauses 2.2 and 2.3 above and Schedule 5) the Company shall use reasonable endeavours to ensure that the Maximum Import Capacity and the Maximum Export Capacity is available at the Connection Point during the period of this Connection Agreement.

2.8. The Customer's entitlement to a Maximum Import Capacity or Maximum Export Capacity is conditional upon:

- (a) the installation by the Company (at the Customer's sole cost) of the Company's Control Equipment and the connection of the Customer's equipment to the Company's Control Equipment;
- (b) the Customer maintaining the Customer's Installation and its equipment in accordance with Clause 5 of this Agreement at the Customer's sole cost; and
- (c) paying the Annual Alternative Connection Charge of £xx,xxx (excluding value added tax) in accordance with clause 5.4,

to enable monitoring and carrying out of Curtailment.

2.9 Curtailment of the network will occur at a varying level based on a real-time assessment on the Distribution System, with the Adjusted Import / Export Capacity being maintained between the Maximum Import / Export Capacity and the Protected Import / Export Capacity. The level of Curtailment will depend on a number of factors, including (but not limited to) those listed below and may increase or decrease over time:

- (a) changes in operational running of the Distribution System;
- (b) changes in the level of demand;
- (c) increases in the number of connecting small scale embedded generation;
- (d) reinforcement of the Distribution System triggered by demand;
- (e) reinforcement of the Distribution System triggered by conventional generation connections;
- (f) any Active Network Management system or associated communications systems outage;
- (g) any reduction in the normal ability of the Distribution System to absorb generation export and/or supply load import;
- (h) any balancing or flexibility service operations or NGET limitations or outages (planned or unplanned).

A study has been completed to assess the level of Curtailment of this connection under normal running conditions. This study is based on historic load data, outage data, fault data and profiles for new and existing generators to provide an estimated level of Curtailment for this connection [as set out below]. For the avoidance of doubt, the Company does not guarantee any level of duration or frequency of Curtailment and the Company expects the Customer to have conducted their own assessment of the potential Curtailment and the risk associated with this alternative connection.

Estimated worst case with all generation at maximum output and a reduction in current demand by 25%	Estimated [ ]% Energy constrained from [ ] MWh output over 18 months (Jan 12-June 13)
Estimated current scenario with no smart grid technology	Estimated [ ]% Energy constrained from [ ] MWh output over 18 months (Jan 12-June 13)
Estimated current scenario with smart grid technology	Estimated [ ]% Energy constrained from [ ] MWh output over 18 months (Jan 12-June 13)

### 3. LIABILITY FOR CURTAILMENT

- 3.1. Subject to Clause 9 of Section 2, Clause 15.3 of Section 3 or Clause 16.3 of Section 4 (as appropriate) of the National Terms of Connection, the Company shall under no circumstances be liable to the Customer for any costs, damages, expenses or losses (including, without limitation, third party losses or loss of profits) suffered or incurred by the Customer or arising out of or in connection with any Curtailment of export under normal running conditions as set out above.

### 4. ADDITIONAL TERMINATION RIGHTS

- 4.1. In addition to the termination rights set out in Clause 13 of Section 2, Clause 19 of Section 3 of Clause 20 of Section 4 (as appropriate) of the National Terms of Connection, the Parties agree that the Company may terminate the Connection Agreement by giving notice of such termination to the Customer in the event that the Customer commits a material breach of any of its obligations contained in Clause 2 of this Agreement.

### 5. CUSTOMER'S OBLIGATIONS

- 5.1. The Customer shall maintain the connection of the Customer's Installation to the Company's Control Equipment and such parts of the ANM Scheme that the Customer is responsible for, as identified in Schedule 4 so that it is fit for the purpose for which it is used, and so that neither it nor its operation or use shall be liable to cause damage to, or interference with, the Distribution System or the National Electricity Transmission System (or their operation or use or the flow of electricity through them) nor affect the sustained operation of the ANM Scheme.
- 5.2. The Customer shall not change any parts of the ANM Scheme that are the Customer's responsibility without obtaining the prior written consent of the Company.
- 5.3. The Customer shall notify the Company in writing at least 28 days prior to undertaking any maintenance of those parts of the ANM Scheme that the Customer is responsible for maintaining.
- 5.4. The Customer shall pay to the Company the Annual Alternative Connection Charge on Energisation and on each subsequent anniversary thereafter in advance in respect of each year of this Connection Agreement. The Company shall issue an invoice for the Annual Alternative Connection Charge each year when the payment is due. Payment must be made within 28 days of the date of the invoice.
- 5.5. The Annual Alternative Connection is non-refundable in all circumstances including, but not limited to, termination of this Connection Agreement by either Party for any reason.

### 6. SUBSEQUENT OWNERS



## **SCHEDULE 1 - SPECIFIC TERMS FOR CONNECTION**

### **Characteristics of the supply of electricity: [example data]**

<b>Maximum Import Capacity:</b>	XXXX kVA		
<b>Maximum Export Capacity:</b>	XXXX kVA		
<b>Protected Import Capacity:</b>	XXXX kVA		
<b>Protected Export Capacity:</b>	XXXX kVA		
<b>Import Power Factor (normal operation):</b>	XX		
<b>Export Power Factor (normal operation):</b>	XX		
<b>Voltage:</b>	XXXX Volts		
<b>Phase:</b>	Three phase		
<b>Frequency:</b>	50 Hertz		
<b>Current:</b>	Alternating		
<b>Last In First Off (LIFO) Queue Number:</b>	x		
<b>Last In First Off (LIFO) Generation Breakdown:</b>	Generation Type	Generation Capacity (MW)	Number of Connections
	Wind	[ ]	[ ]
	Solar	[ ]	[ ]
	Synchronous/Other	[ ]	[ ]

### **General**

The Customer will pay to the Company the Annual Alternative Connection Charge in accordance with Clauses 2.8 and 5.4 of this Agreement.

The Maximum Import Capacity stated in this Schedule 1 has been requested by the Customer and agreed by the Company.

The Maximum Import Capacity will be fixed from the date that this Connection Agreement takes effect unless increased by agreement between the Customer and the Company.

The Maximum Export Capacity stated in this Schedule 1 has been requested by the Customer and agreed by the Company.

The Maximum Export Capacity will be fixed from the date that this Connection Agreement takes effect unless increased by agreement between the Customer and the Company.

The Maximum Import Capacity, Maximum Export Capacity, Import Power Factor and Export Power Factor may be subject to Curtailment by the Company, as set out in Clause 2 of this Agreement.

Where more than one connection within a given section of the Distribution System needs to be curtailed then the connections shall be curtailed in order, with the last comer being curtailed first and the first comer being curtailed last. When the Distribution System limitation is lifted then the connections are restored to normal in the opposite order, i.e. the first comer is restored first and the last comer is restored last. This principle is known as 'Last In, First Off' ("**LIFO**"). Where a group of connections are handled in this way they deemed to be in the same "**LIFO Queue**".



The LIFO Queue Number corresponds to the position of the Customer's Installation with respect to other alternative connections in the same LIFO Queue. Alternative connections are constrained off in the reverse order of the LIFO Queue so that connections with a higher LIFO Queue Number will not influence the constraints of the Customer's Installation.

## **SCHEDULE 2 - CONNECTION POINTS & ASSET USE**

### **Connection Point:**

[For example:]

The outgoing terminals of the Company's 33kV metering circuit breaker.

### **Connection Extension Assets – Relevant Connection Equipment:**

[For example:]

33kV switchgear

1 x 33kV cable

Control, protection and metering equipment at Customer's substation

Sole use ANM Assets

### **Shared Use Reinforcement Assets – Relevant Connection Equipment:**

[For example:]

33kV overhead line (3km reinforced)

Shared ANM Assets

## **SCHEDULE 3 - GENERATING EQUIPMENT**

### **1. DEFINITIONS**

In this Schedule 3, except where the context requires otherwise, the following terms shall have the meanings set opposite them.

"**Earthing System**" the arrangement of Earthing Electrodes and conductors connecting an electrical network to Earth.

"**Generating Plant**" an installation comprising of one or more Generating Units.

"**Generating Unit**" any apparatus which produces electricity.

"**Interface Protection**" Protection equipment installed to meet the requirements of National Engineering Recommendation G59/1 as may be updated or superseded from time to time.

"**High Voltage**" any alternating voltage exceeding 1000 volts.

"**Island Mode**" an operating mode of a Generating Plant, where the connection between the Company's Distribution System and the Generating Plant is disconnected while the Generator operates.

"**Operation**" a scheduled or planned action carried out on an electrical network and "**Operate**" shall be construed accordingly..

"**Parallel Mode**" an operating mode of a Generating Plant where the connection is maintained between the Company's Distribution System and the Generating Plant while the Generator operates.

"**Protection**" The provisions for detecting abnormal conditions in an electrical network and initiating fault clearance or actuating signals and indications.

2. The Company consents to the following generators being directly connected to the Company's Distribution System:

Type of Generation	Generation Unit Identification Name and/or Nonmenclature	Generation Unit Manufacturer, Make & Type	Installed Size of Generation (kW/per Unit)	No. of Units	No. of Phases	Commissioning Date	Long / Short Term Parallel or Stand-by Generation
xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

### **3. Site Specific Generation Conditions**

3.1 The specification of the Customer's Generating Plant is in accordance with Table 1.

- 3.2** Under the terms of this Connection Agreement the Customer's Generating Plant may operate in Parallel Mode.
- 3.3** The means of connecting and disconnecting the Customer's Generating Plant is shown on drawing [XXXX].
- 3.4** The design and installation of the Earthing System for the Customer's Premises is the Customer's responsibility. The Customer may connect the Customer's High Voltage Apparatus to the Company's High Voltage Earthing System. It is the Customer's responsibility to ensure the earthing arrangements are adequate for the Customer's premises and no liability will be accepted by the Company if the Company's Earthing System is used.
- 3.5** The design and installation of the Protection for the Customer's Generating Plant is the Customer's responsibility.
- 3.6** The Customer warrants to the Company that the Customer has taken all reasonable measures and in any event acted in accordance with Good Industry Practice to design and install Protection systems which adequately protect the Customer's Plant and Apparatus and the Company's Distribution System.
- 3.7** The Customer's Protection and control systems shall be designed, operated and maintained so as to safely connect, operate and disconnect the Customer's Generating Plant in accordance with National Engineering Recommendation G59/2 (as may be updated or superseded from time to time).
- 3.8** Protection settings on the Customer's Plant and Apparatus at the Ownership Boundary and on the Interface Protection shall be agreed with the Company. The agreed Protection and settings are specified in Table 2.
- 3.9** The Customer shall allow the Company all reasonable access to witness the commissioning of the Customer's Interface Protection equipment when it is initially installed and following any future modifications to the arrangement and Operation of the Generating Plant, or Protection equipment.
- 3.10** The Customer shall re-test the Interface Protection at intervals not exceeding 3 years. The Customer shall, on request by the Company, provide the Company, within ten (10) working days of the request, with records of the Customer's Protection settings, test results, and any other applicable records, accounts, or documentation.

**TABLE 1: GENERATOR DETAILS**

Maximum Fault Contribution From All Generating Units (kA):

Peak asymmetrical short circuit current at 10ms (ip) for a 3phase short circuit fault at the Connection Point	RMS value of the initial symmetrical short circuit current (Ik) for a 3phase short circuit fault at the Connection Point	RMS value of the symmetrical short circuit current at 100ms (Ik(100)) for a 3phase short circuit fault at the Connection Point
xxx	xxx	xxx

**TABLE 2 : INTERFACE PROTECTION**

Generator connected at HV [Example data]

Protection Function	CT VT Ratio	Protection Setting	Circuit Breaker Tripped
Over Current Protection	N/A	Ph Flt IDMT OC 0.5A TM=0.16 Std Inv Ph Flt HSOC 1.125A Time=0.05s Def Time Ph Flt DOC 0.275A TSM=0.1 Std Inv Ang=+30deg	Company's 33kV Incoming CB
Earth Fault Protection	N/A	Earth Fault IDMT OC I=0.1A Time multiplier=0.16 Standard Inverse Characteristic	Company's 33kV Incoming CB
Under Voltage Stage 1	N/A	Vn - 13% 2.5s Customer's	Customer's 33kV CB
Under Voltage Stage 2	N/A		Customer's 33kV CB
Over Voltage Stage 1	N/A		Customer's 33kV CB
Over Voltage Stage 2	N/A		Customer's 33kV CB
Under Frequency Stage 1	N/A		Customer's 33kV CB
Under Frequency Stage 2	N/A		Customer's 33kV CB
Over Frequency Stage 1	N/A		Customer's 33kV CB
Over Frequency Stage 2	N/A		Customer's 33kV CB
<Neutral Voltage Displacement>			Company's 33kV Incoming CB
<Rate of Change of Frequency>	N/A		Customer's 33kV CB
<Vector Shift>	N/A		Customer's 33kV CB

Vn = nominal voltage

## **SCHEDULE 4 – SITE RESPONSIBILITY SCHEDULES**

### **1. DEFINITIONS**

In this Schedule 4, except where the context requires otherwise, the following terms shall have the meanings set opposite them.

**"Authorisation"** the formal sanction given in writing to undertake specified tasks that has a specific meaning in Safety Management Systems.

**"Authorised Person"** a person who has received an Authorisation.

**"Control Person"** a person who is responsible for controlling and coordinating Operations on an electrical network.

**"Equipment"** Plant and/or Apparatus.

**"Operations"** a scheduled or planned action carried out on an electrical network and **"Operate"** shall be construed accordingly..

**"Protection"** the provisions for detecting abnormal conditions in an electrical network and initiating fault clearance or actuating signals and indications.

**"Safety Management System"** the procedure adopted by the owner of an electrical network to ensure safe Operation of their electrical network and the safety of personnel required to work on that electrical network.

**"Switching Schedule"** a schedule which defines the agreed sequence of Operations. Provision is made on the Switching Schedule to allow the name of the operator and the time of Operation to be filled in as they are completed.

**"System Control"** the administrative and other arrangements established to maintain as far as possible the proper safety and security of the electrical network.

**"Company's Distribution Safety Rules"** the Company's rules and procedures that ensure the safe Operation of the Company's Distribution System.

## 2. SYSTEM RESPONSIBILITIES

2.1 The person responsible for coordination of operational safety on the Company's behalf is either:-

(a) a central Control Person, or

(b) a field Control Person who has been delegated control of part of the Company's Distribution System by the Company's central Control Person.

The name of the Company's Control Person at any particular time can be obtained from the Operations Support Engineer (South West or South Wales call 02920 332887, or for the Midlands area please call 01332 827093) or other revised telephone number advised by the Company in writing.

Alternatively the Customer can write to:

South West / South Wales Midlands  
The Operations Support Engineer  
Western Power Distribution  
Control Centre  
Mardy Industrial Estate  
Lamby Way  
Rumney  
Cardiff  
CF3 2EQ

The Operations Support Engineer  
Western Power Distribution  
Control Centre  
Pegasus Business Park  
Herald Way  
Castle Donnington  
DE74 2TU

2.2 The Customer shall at all times have nominated a person or persons to be responsible for the co-ordination of safety.

2.3 The person responsible for the coordination of safety on the Customer's behalf ("the Customer's Safety Coordinator") is:-

[insert details]

2.4 Operational liaison shall be between the Company's Control Person and the Customer's Safety Coordinator.

## 3. OWNERSHIP BOUNDARY

3.1 The Company's responsibility for the Connection ends at the Connection Point. The Customer is responsible for providing the installation beyond this point in conformity with the appropriate Regulations and the terms of this Connection Agreement.

**3.2** Where the Company agree to provide Protection for the Customer's Installation it shall remain the Customer's responsibility to ensure that the Protection the Company provide is adequate. The Company will provide details of the Protection utilised upon written request.

**3.3** Ownership responsibilities are in accordance with Table A.

**3.4** Each Party shall allow the other Party's representatives reasonable access to its Equipment for testing of Protection, Metering and Metering Equipment.

#### **4. SAFETY MANAGEMENT SYSTEM**

**4.1** The Company's Control Person and the Customer's Authorised Person shall agree who is to carry out the Operations and the Safety Management System to be used, which shall as a minimum default to the Company's Distribution Safety Rules and to the Company's standard technique, ST:OS6E/2 (as updated or superseded from time to time) relating to "Safety Co-ordination at the Interface between the Company and Customer's Networks".

**4.2** The Company's Control Person and the Customer's Authorised Person shall agree the switching Operations to be undertaken in accordance with the Switching Schedule.

**4.3** All Operations shall be carried out under the respective System Control.

**TABLE A - RESPONSIBILITY SCHEDULE**

Substation Name **XXX**

Substation Number **XXXX**

Equipment Number and/or nonmenclature	Responsible Party			
	Ownership	Control	Operation	Maintenance
Metering Circuit Breaker	COMPANY	COMPANY	COMPANY	COMPANY
Metering Unit	COMPANY	COMPANY	COMPANY	COMPANY
Outgoing Switch	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Telecontrol Unit	COMPANY	COMPANY	COMPANY	COMPANY
110V Batteries/ Charger	COMPANY	COMPANY	COMPANY	COMPANY
48V Batteries/ Charger	COMPANY	COMPANY	COMPANY	COMPANY
Protection Panel	COMPANY	COMPANY	COMPANY	COMPANY
Signal Exchange Box	COMPANY	COMPANY	COMPANY	COMPANY
Voltage Transformer Cubicle	COMPANY	COMPANY	COMPANY	COMPANY
Security and Fire Alarm	COMPANY	COMPANY	COMPANY	COMPANY
Heating and Lighting	COMPANY	COMPANY	COMPANY	COMPANY
Low Voltage AC Supply	COMPANY	COMPANY	COMPANY	COMPANY
33kV Interconnecting Cable	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Company Control Equipment	COMPANY	COMPANY	COMPANY	COMPANY



## **SCHEDULE 5 - SITE SPECIFIC OPERATING ARRANGEMENTS**

### **1. Definitions**

In this Schedule, except where the context requires otherwise, the following terms shall have the meanings set opposite them.

**"Generating Plant"** an installation comprising of one or more Generating Units.

**"Generating Unit"** any apparatus which produces electricity.

**"Interface Protection"** Protection equipment installed to meet the requirements of Energy Networks Association Engineering Recommendation G59 as may be amended from time to time.

**"NGET"** National Grid Electricity Transmission plc.

**"Protection"** The provisions for detecting abnormal conditions in an electrical network and initiating fault clearance or actuating signals and indications.

### **2. Occupiers**

2.1 Where the Customer gives its written consent for a third party to connect Generating Plant to the Customer's Premises or otherwise for one or more third parties to occupy all or any part of the Customer's Premises, whether by granting a lease or a licence (the "Occupier") the Customer shall:

- (a) procure that the Occupier is subject to and complies in all respects with the obligations set out in this Connection Agreement as though it were party to it;
- (b) procure that the Company shall have such rights and powers in respect of the Occupier, including over the Premises and any part of the Customer's Installation occupied by the Occupier and, as relevant, any Plant, Generating Plant, Generating Unit, Interface Protection, Protection and Apparatus therein as it would have if the Occupier was a party to this Connection Agreement; and
- (c) ensure that the Occupier does not amend, alter, renew or replace any Plant, Generating Plant, Generating Unit, Apparatus, Interface Protection and/or or Protection without the Company's prior written consent.

2.2 Without prejudice to paragraph 2.1, the presence of the Occupier shall not relieve the Customer of any obligations under this Connection Agreement, and the acts or omissions of the Occupier shall, for the purposes of this Connection Agreement, be deemed to be acts or omissions of the Customer.

2.3 In addition to the termination rights set out in Clause 13 of Section 2, Clause 19.3 of Section 3 or Clause 20.3 of Section 4 (as appropriate) of the National Terms of Connection, the Parties agree that the Company may terminate the Connection Agreement by giving notice of such termination to the Customer in the event that:

- (a) the Customer breaches its obligations in clause 2.1 (a) to (c) (inclusive) above;
- (b) the acts or omissions of the Occupier would otherwise constitute a breach if such acts were done or omissions made by the Customer; or
- (c) any of the events set out in Clause 19.3.3 of Section 3 or Clause 20.3.3 of Section 4 (as appropriate) of the National Terms of Connection occurs in respect of the Occupier.

2.4 If an Occupier breaches any contract or arrangement it has entered into with an electricity supplier for the supply of electricity to the Premises, which breach permits the electricity supplier to De-Energise and/or Disconnect the Connection Point, or if there exist other circumstances pursuant to which the Company is required, instructed or entitled to De-Energise and/or Disconnect the Connection Point in respect of the Occupier, the Company shall not be deemed to be in breach of this

Connection Agreement and shall not be liable in any way whatsoever to the Customer as regards any such De-Energisation and/or Disconnection.

- 2.5 The Customer shall indemnify and keep indemnified the Company against all costs, losses, claims, expenses and/or liabilities that the Company may suffer or incur arising out of or in relation to the Occupier (including any breach by the Customer of paragraph 2.1 above and/or the acts or omissions of the Occupier), provided that the Customer's liability under this indemnity shall be limited to £1,000,000 per incident or series of related incidents.

### 3. **Curtailement and De-Energisation**

- 3.1 Notwithstanding any other provision of this Connection Agreement, the Company may instruct the Customer to (at the Customer's own expense) immediately De-energise or implement an immediate reduction to the Maximum Import Capacity and/or the Maximum Export Capacity (including to zero), or the Connection Point may otherwise be de-energised (whether De-energised as defined or otherwise), or a Customer's Maximum Import Capacity and/or Maximum Export Capacity reduced (including to zero) (any such reduced capacity under this paragraph being the "Revised Maximum Export Capacity"), in the following scenarios:

- (a) for the reasons set out in Section 3 or 4 (as appropriate), including Clause 5 of the same, of the National Terms of Connection (as amended from time to time) where such section is incorporated into this Connection Agreement including, but not limited to:
  - (i) where it is necessary or reasonable for the Company to do so as part of a System Outage, including for planned maintenance of the Distribution System;
  - (ii) in order to permit other persons to connect to the Distribution System;
  - (iii) where the Company reasonably considers it necessary to do so for safety reasons or for the security of the Distribution System or any other electrical system (including in order to avoid interference with the regularity or efficiency of the Distribution System);
  - (iv) where, in the Company's reasonable opinion, the condition or manner of operation of the Customer's Installation and/or the condition or manner of operation of the Distribution System, poses a threat of injury or material damage to any person or property (including the Distribution System, the National Electricity Transmission System and/or any electrical systems and installations connected thereto); or
  - (v) where the Customer is in breach of this Connection Agreement (which includes a failure to comply with any instruction given by the Company pursuant to this paragraph);
- (b) for the reasons set out in paragraph 7 of Section 2 of the National Terms of Connection (as amended from time to time) where such section is incorporated into this Connection Agreement;
- (c) in the event of any unplanned Distribution System, or planned or unplanned transmission system, network outage or communications system failure,, including in respect of any resulting repair required;
- (d) notwithstanding any consent that may have been granted for any equipment as set out below, which is based on estimated disturbance levels and taking a risk-based approach to the likelihood of complaint, and without prejudice to any other provision of this Connection Agreement, where the Customer's Installation and/or any other electrical equipment which the Customer connects (including motors, welders, furnaces, high power appliances, converters (e.g. rectifiers, switch mode power supplies, uninterruptible power supplies, battery chargers, high-frequency induction furnaces and variable speed drives), regulators (e.g. AC heating and lighting controls) and other equipment with non-linear voltage / current characteristics (e.g. arc welders and arc furnaces)) adversely affects any other customer connected to the Distribution System and/or causes disturbance outside of acceptable limits to the Distribution System;

- (e) where an instruction has been received by the Company from NGET to De-energise or curtail embedded generation in accordance with the requirements of BC2.9.1.4 of the Grid Code and using the principles set out in OC6.7.1 of the Grid Code under emergency conditions on the National Electricity Transmission System, which will typically occur when a number of generators' output is high and, at the same time, distribution demand is low, leading to either voltage, thermal or protection issues on the Distribution System or National Electricity Transmission System.
- 3.2 Without prejudice to the above, the following potential network constraints have been identified – this is a non-exhaustive and non-binding list of any current identified potential network constraints and does not take into account future developments and changes to the electricity network:
- **[Include any identified potential constraints]**
- 3.3 Without prejudice to the above, consent has been granted (subject to any specified operating restrictions identified) for the connection of the following electrical equipment that may adversely affect other customers connected to the Distribution System and/or cause disturbances to the Distribution System:
- **[Include any such identified consented equipment and any operating restrictions]**
- 3.4 Notwithstanding any other provision of this Connection Agreement, the Customer shall be liable for the costs of any remedial action required as a result of any adverse interference caused by the Customer's Installation and/or any other electrical equipment which the Customer connects with any other customer connected to the Distribution System.
- 3.5 The Company shall use its reasonable endeavours to provide as long a period of notice as is practicable of any requirement to De-energise or reduce a Customer's Maximum Import Capacity and/or Maximum Export Capacity (including to zero), including such notice period as is set out in the National Terms of Connection, however the Company reserves the right to De-energise or reduce a Customer's Maximum Import Capacity and/or Maximum Export Capacity without notice where it reasonably considers it necessary based on the system conditions prevailing on the Distribution System and/or the National Electricity Transmission System, or where the Customer has failed to comply with any instruction from the Company to De-energise or reduce its Maximum Import Capacity and/or Maximum Export Capacity.
- 3.6 Subject to Clause 9 of Section 2, Clause 15.3 of Section 3 or Clause 16.3 of Section 4 (as appropriate) of the National Terms of Connection, the Company shall under no circumstances be liable to the Customer for any costs, damages, expenses or losses (including, without limitation third party losses or loss or profit) suffered, incurred or arising out of or in connection with any de-energisation or reduction of its Maximum Import Capacity and/or Maximum Export Capacity as set out above other than as set out in this Connection Agreement.
- 3.7 The Customer shall indemnify the Company and keep it indemnified fully on demand against all liabilities, losses, damages, costs (including all reasonable legal costs), expenses and fines attributable to the Customer's failure to comply, or any delay in complying, with any instruction given by the Company under this paragraph.
- 3.8 The Revised Maximum Export Capacity shall apply until the Company notifies the Customer otherwise.
- 3.9 For the avoidance of doubt, in the event of an Instruction being given to the Customer from the Company's Control Equipment (under normal or abnormal operating conditions on the Distribution System or National Electricity Transmission System) the provisions of paragraph 3 above will not apply.
4. The voltage flicker caused by the operation of the Customer's Installation shall be limited to the stage 2 limits of Engineering Recommendation P28 at the point of common coupling.

The generators shall be controlled such that it is possible, if so required, to introduce a minimum period of one minute between the start or restart of each generator.

The Company has consented that the Generator Unit(s) listed under Schedule 3 be directly connected to the Company's Distribution System. It is a requirement that the Maximum Export Capacity given under Schedule 1 shall under no circumstances be exceeded and the Customer agrees to constrain any export energy below this limit by means of an automatic management system.

5. The Customer's Installation should comply with the requirements of:
  - Energy Networks Association Engineering Recommendation G5/4 - "Planning Levels for Harmonic Voltage Distortion and the Connection of Non-linear Equipment to the Transmission Systems and Distribution Networks in the United Kingdom" (as may be updated or superseded from time to time);
  - Energy Networks Association Engineering Recommendation P28 - "Planning Limits for Voltage Fluctuations caused by Industrial, Commercial and Domestic Equipment in the United Kingdom" (as may be updated or superseded from time to time); and
  - Energy Networks Association Engineering Recommendation P29 - "Planning Limits for Voltage Unbalance in the United Kingdom" (as may be updated or superseded from time to time).
6. **[Delete if firm connection provided]** The [33kV] connection is made as a single circuit connection between the Company's [33kV] Distribution System and the Customer's Installation through one Connection Point. No alternative circuit connection at [33kV] will be provided. As a result of a single circuit connection, the Customer acknowledges and accepts the increased risk of disconnection or constraint of generation and/or demand. WPD will not be liable for any DG network unavailability payments as a result of any disconnection of generation in respect of a single circuit connection.  
  
**[Delete if non-firm connection provided]** The [33kV] connection consists of two separate circuits between the Company's [33kV] Distribution System and the Customer's Installation through one Connection Point. The site will remain on supply if a single circuit is lost, but will lose supply if both circuits are lost.
7. When exporting energy onto the Company's Distribution System, the Customer shall, at all times and at its own expense, take all reasonable precautions to ensure that the Customer's site export operates as near as practicable to [0.98] leading power factor. Notwithstanding this requirement, the export or import of reactive power to the Distribution System shall be permitted under transient conditions provided that the power factor of the export is no less than [0.95 leading and unity].  
  
In order to allow the Company to contain voltage within acceptable limits at the National Electricity Transmission System and the Company's Distribution System interface, the Customer must ensure that the generators have the capability to operate between 0.95 leading and 0.95 lagging power factor, and shall operate at the power factor prescribed by the Company as set out above. In the event that, in the Company's reasonable opinion, the Company needs to contain voltage within acceptable limits it shall instruct the Customer in writing to operate thereafter at a different power factor, which shall be within the 0.95 leading and 0.95 lagging power factor range. The Customer shall at the Customer's own expense comply with the instruction within 28 days of the date of the notification.
8. Generator plant and equipment must comply with the requirements of the Electricity Supply Industry's Engineering Recommendation G59/2 'Recommendations for the connection of generating plant to the distribution systems of licensed distribution network operators' (as may be updated or superseded from time to time).
9. The Connection Site is to be operated strictly in accordance with the provisions and requirements of the Electricity Supply Industry's Engineering Recommendation G59/2 entitled "'Recommendations for the connection of generating plant to the distribution systems of licensed distribution network

operators' operators' (as may be updated or superseded from time to time) or other reasonable provisions as may, from time to time, be required by the Company.

10. The Company accepts the inclusion of its connection point circuit breaker and its associated protection in the Customer's protection scheme for the site. The inclusion of the Company's own equipment and protection into the Customer's protection scheme is the responsibility of the Customer and this facility is provided entirely at the Customer's risk. The Company shall provide the customer with details of the protection settings employed at the connection point circuit breaker. It is the Customer's responsibility to ensure that these settings provide adequate protection of the Customer's plant and apparatus.

## **SCHEDULE 6 - ACCOMMODATION**

The Customer will provide accommodation to the Company's specification as referred to below, such accommodation to be located on the land shown coloured pink on the attached Drawing Number **XXXXXX**

As the Customer's Connection is or will be at High Voltage (i.e. exceeding 1,000 volts AC), the Customer shall provide, without cost to the Company:

(a) Accommodation on the Premises (where appropriate, as specified in this Schedule) in accordance with the Company's requirements for the Company's Equipment, and (where appropriate) with separately located accommodation for the Company's Control Equipment, Metering Equipment, cable termination and ancillary equipment; and

(b) where required, a 30mA RCD protected dual switch socket outlet, a luminaire and space heating to a minimum standard so as to give frost protection together with a 230 volt electricity supply; and the Customer will keep in good order repair and condition all parts of the accommodation including the interior surfaces and any boundary fences and/or cladding which enclose the accommodation.