01 August 2014

Dear Sir/Madam

THE SERVICED GRID CODE – ISSUE 5 REVISION 10

Issue 5 Revision 10 of the Grid Code has been directed by the Secretary of State for implementation on 01 August 2014.

In order to ensure your copy of the Grid Code remains up to date, you will need to replace the sections affected with the revised versions available on the National Grid website.

The revisions document provides an overview of the changes made to the Grid Code since the previous issue.

Yours faithfully,

Lucy Hudson
Frameworks Administrator
Transmission Network Service - Operations (Governance)
SUMMARY OF CHANGES

Secretary of State Direction – Modifications to Transmission Licences and Documents maintained under Licences (EMR No.2 of 2014)

Summary

In June 2014, the package of secondary legislation for Electricity Market Reform (EMR) was laid before Parliament in accordance with the Energy Act 2013. This set out the changes required in the Licence and the Codes. The EMR programme is promoting investment in secure and low carbon electricity generation, while improving affordability for consumers. There are two main mechanisms being introduced by the Government to reform the electricity market – Contracts for Difference and the Capacity Market. The Licence and code modifications are being made to mitigate any potential conflicts of interest for National Grid as the System Operator to perform its role as the Delivery Body for EMR.
GLOSSARY & DEFINITIONS

(GD)

GD.1 In the Grid Code the following words and expressions shall, unless the subject matter or context otherwise requires or is inconsistent therewith, bear the following meanings:

Access Group
A group of Connection Points within which a User declares under the Planning Code
(a) An interconnection and/or
(b) A need to redistribute Demand between those Connection Points either pre-fault or post-fault

Where a single Connection Point does not form part of an Access Group in accordance with the above, that single Connection Point shall be considered to be an Access Group in its own right.

Access Period
A period of time in respect of which each Transmission Interface Circuit is to be assessed as whether or not it is capable of being maintained as derived in accordance with PC.A.4.1.4. The period shall commence and end on specified calendar weeks.

Act

Active Energy
The electrical energy produced, flowing or supplied by an electric circuit during a time interval, being the integral with respect to time of the instantaneous power, measured in units of watt-hours or standard multiples thereof, ie:

- 1000 Wh = 1 kWh
- 1000 kWh = 1 MWh
- 1000 MWh = 1 GWh
- 1000 GWh = 1 TWh

Active Power
The product of voltage and the in-phase component of alternating current measured in units of watts and standard multiples thereof, ie:

- 1000 Watts = 1 kW
- 1000 kW = 1 MW
- 1000 MW = 1 GW
- 1000 GW = 1 TW

Affiliate
In relation to any person, any holding company or subsidiary of such person or any subsidiary of a holding company of such person, in each case within the meaning of Section 736, 736A and 736B of the Companies Act 1985 as substituted by section 144 of the Companies Act 1989 and, if that latter section is not in force at the Transfer Date, as if such section were in force at such date.

AF Rules
Has the meaning given to “allocation framework” in section 13(2) of the Energy Act 2013.
Ancillary Service  
A System Ancillary Service and/or a Commercial Ancillary Service, as the case may be.

Ancillary Services Agreement  
An agreement between a User and NGET for the payment by NGET to that User in respect of the provision by such User of Ancillary Services.

Annual Average Cold Spell Conditions or ACS Conditions  
A particular combination of weather elements which gives rise to a level of peak Demand within a Financial Year which has a 50% chance of being exceeded as a result of weather variation alone.

Apparent Power  
The product of voltage and of alternating current measured in units of voltamperes and standard multiples thereof, ie:

- $1000 \text{ VA} = 1 \text{ kVA}$
- $1000 \text{ kVA} = 1 \text{ MVA}$

Apparatus  
Other than in OC8, means all equipment in which electrical conductors are used, supported or of which they may form a part. In OC8 it means High Voltage electrical circuits forming part of a System on which Safety Precautions may be applied to allow work and/or testing to be carried out on a System.

Authorised Electricity Operator  
Any person (other than NGET in its capacity as operator of the National Electricity Transmission System) who is authorised under the Act to generate, participate in the transmission of, distribute or supply electricity.

Automatic Voltage Regulator or AVR  
The continuously acting automatic equipment controlling the terminal voltage of a Synchronous Generating Unit by comparing the actual terminal voltage with a reference value and controlling by appropriate means the output of an Exciter, depending on the deviations.

Authority for Access  
An authority which grants the holder the right to unaccompanied access to sites containing exposed HV conductors.

Authority, The  
The Authority established by section 1 (1) of the Utilities Act 2000.

Auxiliaries  
Any item of Plant and/or Apparatus not directly a part of the boiler plant or Generating Unit or DC Converter or Power Park Module, but required for the boiler plant's or Generating Unit's or DC Converter's or Power Park Module's functional operation.

Auxiliary Diesel Engine  
A diesel engine driving a Generating Unit which can supply a Unit Board or Station Board, which can start without an electrical power supply from outside the Power Station within which it is situated.

Auxiliary Gas Turbine  
A Gas Turbine Unit, which can supply a Unit Board or Station Board, which can start without an electrical power supply from outside the Power Station within which it is situated.

Average Conditions  
That combination of weather elements within a period of time which is the average of the observed values of those weather elements during equivalent periods over many years (sometimes referred to as normal weather).

Back-Up Protection  
Protection equipment or system which is intended to operate when a system fault is not cleared in due time because of failure or inability of the Main Protection to operate or in case of failure to operate of a circuit-breaker other than the associated circuit breaker.
Balancing and Settlement Code or BSC

The code of that title as from time to time amended.

Balancing Code or BC

That portion of the Grid Code which specifies the Balancing Mechanism process.

Balancing Mechanism

Has the meaning set out in NGET’s Transmission Licence

Balancing Mechanism Reporting Agent or BMRA

Has the meaning set out in the BSC.

Balancing Mechanism Reporting Service or BMRS

Has the meaning set out in the BSC.

Balancing Principles Statement

A statement prepared by NGET in accordance with Condition C16 of NGET’s Transmission Licence.

Baseline Forecast

Has the meaning given to the term ‘baseline forecast’ in Section G of the BSC.

Bid-Offer Acceptance

(a) A communication issued by NGET in accordance with BC2.7; or
(b) an Emergency Instruction to the extent provided for in BC2.9.2.3.

Bid-Offer Data

Has the meaning set out in the BSC.

Bilateral Agreement

Has the meaning set out in the CUSC

Black Start

The procedure necessary for a recovery from a Total Shutdown or Partial Shutdown.

Black Start Capability

An ability in respect of a Black Start Station, for at least one of its Gensets to Start-Up from Shutdown and to energise a part of the System and be Synchronised to the System upon instruction from NGET, within two hours, without an external electrical power supply.

Black Start Stations

Power Stations which are registered, pursuant to the Bilateral Agreement with a User, as having a Black Start Capability.

Black Start Test

A Black Start Test carried out by a Generator with a Black Start Station, on the instructions of NGET, in order to demonstrate that a Black Start Station has a Black Start Capability.

Block Load Capability

The incremental Active Power steps, from no load to Rated MW, which a generator can instantaneously supply without causing it to trip or go outside the Frequency range of 47.5 – 52Hz (or an otherwise agreed Frequency range). The time between each incremental step shall also be provided.

BM Participant

A person who is responsible for and controls one or more BM Units or where a Bilateral Agreement specifies that a User is required to be treated as a BM Participant for the purposes of the Grid Code. For the avoidance of doubt, it does not imply that they must be active in the Balancing Mechanism.

BM Unit

Has the meaning set out in the BSC, except that for the purposes of the Grid Code the reference to “Party” in the BSC shall be a reference to User.
BM Unit Data

The collection of parameters associated with each BM Unit, as described in Appendix 1 of BC1.

Boiler Time Constant

Determined at Registered Capacity, the boiler time constant will be construed in accordance with the principles of the IEEE Committee Report "Dynamic Models for Steam and Hydro Turbines in Power System Studies" published in 1973 which apply to such phrase.

British Standards or BS

Those standards and specifications approved by the British Standards Institution.

BSCCo

Has the meaning set out in the BSC.

BSC Panel

Has meaning set out for “Panel” in the BSC.

BS Station Test

A Black Start Test carried out by a Generator with a Black Start Station while the Black Start Station is disconnected from all external alternating current electrical supplies.

BS Unit Test

A Black Start Test carried out on a Generating Unit or a CCGT Unit, as the case may be, at a Black Start Station while the Black Start Station remains connected to an external alternating current electrical supply.

Business Day

Any week day (other than a Saturday) on which banks are open for domestic business in the City of London.

Cancellation of National Electricity Transmission System Warning

The notification given to Users when a National Electricity Transmission System Warning is cancelled.

Capacity Market Documents

The Capacity Market Rules, The Electricity Capacity Regulations 2014 and any other Regulations made under Chapter 3 of Part 2 of the Energy Act 2013 which are in force from time to time.

Capacity Market Rules

The rules made under section 34 of the Energy Act 2013 as modified from time to time in accordance with that section and The Electricity Capacity Regulations 2014.

Cascade Hydro Scheme

Two or more hydro-electric Generating Units, owned or controlled by the same Generator, which are located in the same water catchment area and are at different ordnance datums and which depend upon a common source of water for their operation, known as:

(a) Moriston
(b) Killin
I Garry
(d) Conon
(e) Clunie
(f) Beauly
which will comprise more than one Power Station.

Cascade Hydro Scheme Matrix

The matrix described in Appendix 1 to BC1 under the heading Cascade Hydro Scheme Matrix.

Caution Notice

A notice conveying a warning against interference.
Category 1 Intertripping Scheme
A System to Generator Operational Intertripping Scheme arising from a Variation to Connection Design following a request from the relevant User which is consistent with the criteria specified in the Security and Quality of Supply Standard.

Category 2 Intertripping Scheme
A System to Generator Operational Intertripping Scheme which is:-
(i) required to alleviate an overload on a circuit which connects the Group containing the User's Connection Site to the National Electricity Transmission System; and
(ii) installed in accordance with the requirements of the planning criteria of the Security and Quality of Supply Standard in order that measures can be taken to permit maintenance access for each transmission circuit and for such measures to be economically justified,

and the operation of which results in a reduction in Active Power on the overloaded circuits which connect the User's Connection Site to the rest of the National Electricity Transmission System which is equal to the reduction in Active Power from the Connection Site (once any system losses or third party system effects are discounted).

Category 3 Intertripping Scheme
A System to Generator Operational Intertripping Scheme which, where agreed by NGET and the User, is installed to alleviate an overload on, and as an alternative to, the reinforcement of a third party system, such as the Distribution System of a Public Distribution System Operator.

Category 4 Intertripping Scheme
A System to Generator Operational Intertripping Scheme installed to enable the disconnection of the Connection Site from the National Electricity Transmission System in a controlled and efficient manner in order to facilitate the timely restoration of the National Electricity Transmission System.

CENELEC
European Committee for Electrotechnical Standardisation.

CfD Counterparty
A person designated as a “CfD counterparty” under section 7(1) of the Energy Act 2013.

CfD Documents

CfD Settlement Services Provider
means any person:
(i) appointed for the time being and from time to time by a CfD Counterparty; or
(ii) who is designated by virtue of Section C1.2.1B of the Balancing and Settlement Code,

in either case to carry out any of the CfD settlement activities (or any successor entity performing CfD settlement activities).

CCGT Module Matrix
The matrix described in Appendix 1 to BC1 under the heading CCGT Module Matrix.
CCGT Module Planning Matrix

A matrix in the form set out in Appendix 3 of OC2 showing the combination of CCGT Units within a CCGT Module which would be running in relation to any given MW output.

Cluster

(a) Before Telemetry

A cluster of wind turbines will be formed when the total wind capacity within any circle of five kilometre radius has a Registered Capacity of not less than 5MW

(b) After Telemetry

Any wind turbine installed within a five kilometre radius of the anemometer position (whether installed before or after the installation of that anemometer) will be deemed to be within the cluster for that anemometer and will not count towards the creation of any new cluster. All other wind turbines may count towards the creation of further clusters.

CM Administrative Parties

The Secretary of State, the CM Settlement Body, and any CM Settlement Services Provider.

CM Settlement Body

the Electricity Settlements Company Ltd or such other person as may from time to time be appointed as Settlement Body under regulation 80 of the Electricity Capacity Regulations 2014.

CM Settlement Services Provider

any person with whom the CM Settlement Body has entered into a contract to provide services to it in relation to the performance of its functions under the Capacity Market Documents.

Code Administration Code of Practice

Means the code of practice approved by the Authority and:

(a) developed and maintained by the code administrators in existence from time to time; and

(b) amended subject to the Authority’s approval from time to time; and

(c) re-published from time to time;

Code Administrator

Means NGET carrying out the role of Code Administrator in accordance with the General Conditions.

Combined Cycle Gas Turbine Module or CCGT Module

A collection of Generating Units (registered as a CCGT Module under the PC) comprising one or more Gas Turbine Units (or other gas based engine units) and one or more Steam Units where, in normal operation, the waste heat from the Gas Turbines is passed to the water/steam system of the associated Steam Unit or Steam Units and where the component units within the CCGT Module are directly connected by steam or hot gas lines which enable those units to contribute to the efficiency of the combined cycle operation of the CCGT Module.

Combined Cycle Gas Turbine Unit or CCGT Unit

A Generating Unit within a CCGT Module.
| **Commercial Ancillary Services** | Ancillary Services, other than System Ancillary Services, utilised by NGET in operating the Total System if a User (or other person) has agreed to provide them under an Ancillary Services Agreement or under a Bilateral Agreement with payment being dealt with under an Ancillary Services Agreement or in the case of Externally Interconnected System Operators or Interconnector Users, under any other agreement (and in the case of Externally Interconnected System Operators and Interconnector Users includes ancillary services equivalent to or similar to System Ancillary Services). |
| **Commercial Boundary** | Has the meaning set out in the CUSC |
| **Committed Project Planning Data** | Data relating to a User Development once the offer for a CUSC Contract is accepted. |
| **Common Collection Busbar** | A busbar within a Power Park Module to which the higher voltage side of two or more Power Park Unit generator transformers are connected. |
| **Completion Date** | Has the meaning set out in the Bilateral Agreement with each User to that term or in the absence of that term to such other term reflecting the date when a User is expected to connect to or start using the National Electricity Transmission System. In the case of an Embedded Medium Power Station or Embedded DC Converter Station having a similar meaning in relation to the Network Operator’s System as set out in the Embedded Development Agreement. |
| **Complex** | A Connection Site together with the associated Power Station and/or Network Operator substation and/or associated Plant and/or Apparatus, as appropriate. |
| **Compliance Processes or CP** | That portion of the Grid Code which is identified as the Compliance Processes. |
| **Compliance Statement** | A statement completed by the relevant User confirming compliance with each of the relevant Grid Code provisions, and the supporting evidence in respect of such compliance, of its: Generating Unit(s); or, CCGT Module(s); or, Power Park Module(s); or, DC Converter(s) in the form provided by NGET to the relevant User or another format as agreed between the User and NGET. |
| **Connection Conditions or CC** | That portion of the Grid Code which is identified as the Connection Conditions. |
| **Connection Entry Capacity** | Has the meaning set out in the CUSC |
| **Connected Planning Data** | Data which replaces data containing estimated values assumed for planning purposes by validated actual values and updated estimates for the future and by updated forecasts for Forecast Data items such as Demand. |
| **Connection Point** | A Grid Supply Point or Grid Entry Point, as the case may be. |
Connection Site: A Transmission Site or User Site, as the case may be.

Construction Agreement: Has the meaning set out in the CUSC.

Contingency Reserve: The margin of generation over forecast Demand which is required in the period from 24 hours ahead down to real time to cover against uncertainties in Large Power Station availability and against both weather forecast and Demand forecast errors.

Control Calls: A telephone call whose destination and/or origin is a key on the control desk telephone keyboard at a Transmission Control Centre and which, for the purpose of Control Telephony, has the right to exercise priority over (ie. disconnect) a call of a lower status.

Control Centre: A location used for the purpose of control and operation of the National Electricity Transmission System or DC Converter Station owner's System or a User System other than a Generator's System or an External System.

Control Engineer: A person nominated by the relevant party for the control of its Plant and Apparatus.

Control Person: The term used as an alternative to “Safety Co-ordinator” on the Site Responsibility Schedule only.

Control Phase: The Control Phase follows on from the Programming Phase and covers the period down to real time.

Control Point: The point from which:-

(a) A Non-Embedded Customer's Plant and Apparatus is controlled; or

(b) A BM Unit at a Large Power Station or at a Medium Power Station or representing a Cascade Hydro Scheme or with a Demand Capacity with a magnitude of:

(i) 50MW or more in NGET's Transmission Area; or
(ii) 30MW or more in SPT's Transmission Area; or
(iii) 10MW or more in SHETL's Transmission Area,
(iv) 10MW or more which is connected to an Offshore Transmission System

is physically controlled by a BM Participant; or

(c) In the case of any other BM Unit or Generating Unit, data submission is co-ordinated for a BM Participant and instructions are received from NGET, as the case may be. For a Generator this will normally be at a Power Station but may be at an alternative location agreed with NGET. In the case of a DC Converter Station, the Control Point will be at a location agreed with NGET. In the case of a BM Unit of an Interconnector User, the Control Point will be the Control Centre of the relevant Externally Interconnected System Operator.
Control Telephony

The principal method by which a User’s Responsible Engineer/Operator and NGET Control Engineer(s) speak to one another for the purposes of control of the Total System in both normal and emergency operating conditions.

CUSC

Has the meaning set out in NGET’s Transmission Licence

CUSC Contract

One or more of the following agreements as envisaged in Standard Condition C1 of NGET’s Transmission Licence:

(a) the CUSC Framework Agreement;
(b) a Bilateral Agreement;
(c) a Construction Agreement

or a variation to an existing Bilateral Agreement and/or Construction Agreement;

CUSC Framework Agreement

Has the meaning set out in NGET’s Transmission Licence

Customer

A person to whom electrical power is provided (whether or not he is the same person as the person who provides the electrical power).

Customer Demand Management

Reducing the supply of electricity to a Customer or disconnecting a Customer in a manner agreed for commercial purposes between a Supplier and its Customer.

Customer Demand Management Notification Level

The level above which a Supplier has to notify NGET of its proposed or achieved use of Customer Demand Management which is 12 MW in England and Wales and 5 MW in Scotland.

Customer Generating Plant

A Power Station or Generating Unit of a Customer to the extent that it operates the same exclusively to supply all or part of its own electricity requirements, and does not export electrical power to any part of the Total System.

Data Registration Code or DRC

That portion of the Grid Code which is identified as the Data Registration Code.

Data Validation, Consistency and Defaulting Rules

The rules relating to validity and consistency of data, and default data to be applied, in relation to data submitted under the Balancing Codes, to be applied by NGET under the Grid Code as set out in the document “Data Validation, Consistency and Defaulting Rules” - Issue 8, dated 25th January 2012. The document is available on the National Grid website or upon request from NGET.

DC Converter

Any Onshore DC Converter or Offshore DC Converter.

DC Converter Station

An installation comprising one or more Onshore DC Converters connecting a direct current interconnector:

to the NGET Transmission System; or,

(if the installation has a rating of 50MW or more) to a User System, and it shall form part of the External Interconnection to which it relates.

DC Network

All items of Plant and Apparatus connected together on the direct current side of a DC Converter.
DCUSA

The Distribution Connection and Use of System Agreement approved by the Authority and required to be maintained in force by each Electricity Distribution Licence holder.

De-Load

The condition in which a Genset has reduced or is not delivering electrical power to the System to which it is Synchronised.

Demand

The demand of MW and Mvar of electricity (i.e. both Active and Reactive Power), unless otherwise stated.

Demand Capacity

Has the meaning as set out in the BSC.

Demand Control

Any or all of the following methods of achieving a Demand reduction:

(a) Customer voltage reduction initiated by Network Operators (other than following an instruction from NGET);

(b) Customer Demand reduction by Disconnection initiated by Network Operators (other than following an instruction from NGET);

(c) Demand reduction instructed by NGET;

(d) automatic low Frequency Demand Disconnection;

(e) emergency manual Demand Disconnection.

Demand Control Notification Level

The level above which a Network Operator has to notify NGET of its proposed or achieved use of Demand Control which is 12 MW in England and Wales and 5 MW in Scotland.

Designed Minimum Operating Level

The output (in whole MW) below which a Genset or a DC Converter at a DC Converter Station (in any of its operating configurations) has no High Frequency Response capability.

De-Synchronise

(a) The act of taking a Generating Unit, Power Park Module or DC Converter off a System to which it has been Synchronised, by opening any connecting circuit breaker; or

(b) The act of ceasing to consume electricity at an importing BM Unit; and the term "De-Synchronising" shall be construed accordingly.

De-synchronised Island(s)

Has the meaning set out in OC9.5.1(a)

Detailed Planning Data

Detailed additional data which NGET requires under the PC in support of Standard Planning Data, comprising DPD I and DPD II

Detailed Planning Data Category I or DPD I

The Detailed Planning Data categorised as such in the DRC, and submitted in accordance with PC.4.4.2 or PC.4.4.4 as applicable.

Detailed Planning Data Category II or DPD II

The Detailed Planning Data categorised as such in the DRC, and submitted in accordance with PC.4.4.2 or PC.4.4.4 as applicable.

Discrimination

The quality where a relay or protective system is enabled to pick out and cause to be disconnected only the faulty Apparatus.

Disconnection

The physical separation of Users (or Customers) from the National Electricity Transmission System or a User System as the case may be.
<table>
<thead>
<tr>
<th><strong>Disputes Resolution Procedure</strong></th>
<th>The procedure described in the CUSC relating to disputes resolution.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distribution Code</strong></td>
<td>The distribution code required to be drawn up by each Electricity Distribution Licence holder and approved by the Authority, as from time to time revised with the approval of the Authority.</td>
</tr>
<tr>
<td><strong>Droop</strong></td>
<td>The ratio of the per unit steady state change in speed, or in Frequency to the per unit steady state change in power output.</td>
</tr>
<tr>
<td><strong>Dynamic Parameters</strong></td>
<td>Those parameters listed in Appendix 1 to BC1 under the heading BM Unit Data – Dynamic Parameters.</td>
</tr>
<tr>
<td><strong>E&amp;W Offshore Transmission Licensee</strong></td>
<td>A person who owns or operates an E&amp;W Offshore Transmission System pursuant to a Transmission Licence.</td>
</tr>
<tr>
<td><strong>E&amp;W Transmission System</strong></td>
<td>Collectively NGET’s Transmission System and any E&amp;W Offshore Transmission Systems.</td>
</tr>
<tr>
<td><strong>E&amp;W User</strong></td>
<td>A User in England and Wales or any Offshore User who owns or operates Plant and/or Apparatus connected (or which will at the OTSUA Transfer Time be connected) to an E&amp;W Offshore Transmission System.</td>
</tr>
<tr>
<td><strong>Earth Fault Factor</strong></td>
<td>At a selected location of a three-phase System (generally the point of installation of equipment) and for a given System configuration, the ratio of the highest root mean square phase-to-earth power Frequency voltage on a sound phase during a fault to earth (affecting one or more phases at any point) to the root mean square phase-to-earth power Frequency voltage which would be obtained at the selected location without the fault.</td>
</tr>
<tr>
<td><strong>Earthing</strong></td>
<td>A way of providing a connection between conductors and earth by an Earthing Device which is either:</td>
</tr>
<tr>
<td></td>
<td>(a) Immobilised and Locked in the earthing position. Where the Earthing Device is Locked with a Safety Key, the Safety Key must be secured in a Key Safe and the Key Safe Key must be, where reasonably practicable, given to the authorised site representative of the Requesting Safety Co-ordinator and is to be retained in safe custody. Where not reasonably practicable the Key Safe Key must be retained by the authorised site representative of the Implementing Safety Co-ordinator in safe custody; or</td>
</tr>
<tr>
<td></td>
<td>(b) maintained and/or secured in position by such other method which must be in accordance with the Local Safety Instructions of NGET or the Safety Rules of the Relevant Transmission Licensee or that User, as the case may be.</td>
</tr>
<tr>
<td><strong>Earthing Device</strong></td>
<td>A means of providing a connection between a conductor and earth being of adequate strength and capability.</td>
</tr>
<tr>
<td><strong>Electrical Standard</strong></td>
<td>A standard listed in the Annex to the General Conditions.</td>
</tr>
<tr>
<td><strong>Electricity Council</strong></td>
<td>That body set up under the Electricity Act, 1957.</td>
</tr>
</tbody>
</table>
Electricity Distribution Licence

The licence granted pursuant to Section 6(1) (c) of the Act.

Electricity Supply Industry Arbitration Association

The unincorporated members’ club of that name formed inter alia to promote the efficient and economic operation of the procedure for the resolution of disputes within the electricity supply industry by means of arbitration or otherwise in accordance with its arbitration rules.

Electricity Supply Licence

The licence granted pursuant to Section 6(1) (d) of the Act.

Electromagnetic Compatibility Level

Has the meaning set out in Engineering Recommendation G5/4.

Embedded

Having a direct connection to a User System or the System of any other User to which Customers and/or Power Stations are connected, such connection being either a direct connection or a connection via a busbar of another User or of a Transmission Licensee (but with no other connection to the National Electricity Transmission System).

Embedded Development

Has the meaning set out in PC.4.4.3(a)

Embedded Development Agreement

An agreement entered into between a Network Operator and an Embedded Person, identifying the relevant site of connection to the Network Operator’s System and setting out other site specific details in relation to that use of the Network Operator’s System.

Embedded Person

The party responsible for a Medium Power Station not subject to a Bilateral Agreement or DC Converter Station not subject to a Bilateral Agreement connected to or proposed to be connected to a Network Operator’s System.

Emergency Deenergisation Instruction

An Emergency Instruction issued by NGET to De-Synchronise a Generating Unit, Power Park Module or DC Converter in circumstances specified in the CUSC.

Emergency Instruction

An instruction issued by NGET in emergency circumstances, pursuant to BC2.9, to the Control Point of a User. In the case of such instructions applicable to a BM Unit, it may require an action or response which is outside the Dynamic Parameters, QPN or Other Relevant Data, and may include an instruction to trip a Genset.

EMR Administrative Parties

Has the meaning given to “administrative parties” in The Electricity Capacity Regulations 2014 and each CfD Counterparty and CfD Settlement Services Provider.

EMR Documents

The Energy Act 2013, The Electricity Capacity Regulations 2014, the Capacity Market Rules, The Contracts for Difference (Allocation) Regulations 2014, The Contracts for Difference (Definition of Eligible Generator) Regulations 2014, The Contracts for Difference (Electricity Supplier Obligations) Regulations 2014, The Electricity Market Reform (General) Regulations 2014, the AF Rules and any other regulations or instruments made under Chapter 2 (contracts for difference), Chapter 3 (capacity market) or Chapter 4 (investment contracts) of Part 2 of the Energy Act 2013 which are in force from time to time.

EMR Functions

Has the meaning given to “EMR functions” in Chapter 5 of Part 2 of the Energy Act 2013.
Engineering Recommendations

The documents referred to as such and issued by the Energy Networks Association or the former Electricity Council.

Energisation Operational Notification or EON

A notification (in respect of Plant and Apparatus (including OTSUA) which is directly connected to the National Electricity Transmission System) from NGET to a User confirming that the User can in accordance with the Bilateral Agreement and/or Construction Agreement, energise such User’s Plant and Apparatus (including OTSUA) specified in such notification.

Estimated Registered Data

Those items of Standard Planning Data and Detailed Planning Data which either upon connection will become Registered Data, or which for the purposes of the Plant and/or Apparatus concerned as at the date of submission are Registered Data, but in each case which for the seven succeeding Financial Years will be an estimate of what is expected.

European Specification

A common technical specification, a British Standard implementing a European standard or a European technical approval. The terms "common technical specification", "European standard" and "European technical approval" shall have the meanings respectively ascribed to them in the Regulations.

Event

An unscheduled or unplanned (although it may be anticipated) occurrence on, or relating to, a System (including Embedded Power Stations) including, without limiting that general description, faults, incidents and breakdowns and adverse weather conditions being experienced.

Exciter

The source of the electrical power providing the field current of a synchronous machine.

Excitation System

The equipment providing the field current of a machine, including all regulating and control elements, as well as field discharge or suppression equipment and protective devices.

Excitation System No-Load Negative Ceiling Voltage

The minimum value of direct voltage that the Excitation System is able to provide from its terminals when it is not loaded, which may be zero or a negative value.

Excitation System Nominal Response

Shall have the meaning ascribed to that term in IEC 34-16-1:1991 [equivalent to British Standard BS4999 Section 116.1 : 1992]. The time interval applicable is the first half-second of excitation system voltage response.

Excitation System On-Load Positive Ceiling Voltage

Shall have the meaning ascribed to the term 'Excitation system on load ceiling voltage' in IEC 34-16-1:1991[equivalent to British Standard BS4999 Section 116.1 : 1992].

Excitation System No-Load Positive Ceiling Voltage

Shall have the meaning ascribed to the term 'Excitation system no load ceiling voltage' in IEC 34-16-1:1991[equivalent to British Standard BS4999 Section 116.1 : 1992].

Exemptable

Has the meaning set out in the CUSC.
**Existing AGR Plant**
The following nuclear advanced gas cooled reactor plant (which was commissioned and connected to the **Total System** at the **Transfer Date**):-

(a) Dungeness B  
(b) Hinkley Point B  
(c) Heysham 1  
(d) Heysham 2  
(e) Hartlepool  
(f) Hunterston B  
(g) Torness

**Existing AGR Plant Flexibility Limit**
In respect of each **Genset** within each **Existing AGR Plant** which has a safety case enabling it to so operate, 8 (or such lower number which when added to the number of instances of reduction of output as instructed by **NGET** in relation to operation in **Frequency Sensitive Mode** totals 8) instances of flexibility in any calendar year (or such lower or greater number as may be agreed by the Nuclear Installations Inspectorate and notified to **NGET**) for the purpose of assisting in the period of low **System NRAPM** and/or low **Localised NRAPM** provided that in relation to each **Generating Unit** each change in output shall not be required to be to a level where the output of the reactor is less than 80% of the reactor thermal power limit (as notified to **NGET** and which corresponds to the limit of reactor thermal power as contained in the "Operating Rules" or "Identified Operating Instructions" forming part of the safety case agreed with the Nuclear Installations Inspectorate).

**Existing Gas Cooled Reactor Plant**
Both **Existing Magnox Reactor Plant** and **Existing AGR Plant**.

**Existing Magnox Reactor Plant**
The following nuclear gas cooled reactor plant (which was commissioned and connected to the **Total System** at the **Transfer Date**):-

(a) Calder Hall  
(b) Chapelcross  
(c) Dungeness A  
(d) Hinkley Point A  
(e) Oldbury-on-Severn  
(f) Bradwell  
(g) Sizewell A  
(h) Wylfa

**Export and Import Limits**
Those parameters listed in Appendix 1 to **BC1** under the heading **BM Unit Data – Export and Import Limits**.

**External Interconnection**
**Apparatus** for the transmission of electricity to or from the **National Electricity Transmission System** or a **User System** into or out of an **External System**. For the avoidance of doubt, a single **External Interconnection** may comprise several circuits operating in parallel.

**External Interconnection Circuit**
**Plant** or **Apparatus** which comprises a circuit and which operates in parallel with another circuit and which forms part of the **External Interconnection**.
Externally Interconnected System Operator or EISO
A person who operates an External System which is connected to the National Electricity Transmission System or a User System by an External Interconnection.

External System
In relation to an Externally Interconnected System Operator means the transmission or distribution system which it owns or operates which is located outside the National Electricity Transmission System Operator Area any Apparatus or Plant which connects that system to the External Interconnection and which is owned or operated by such Externally Interconnected System Operator.

Fault Current Interruption Time
The time interval from fault inception until the end of the break time of the circuit breaker (as declared by the manufacturers).

Fast Start
A start by a Genset with a Fast Start Capability.

Fast Start Capability
The ability of a Genset to be Synchronised and Loaded up to full Load within 5 minutes.

Final Generation Outage Programme
An outage programme as agreed by NGET with each Generator and each Interconnector Owner at various stages through the Operational Planning Phase and Programming Phase which does not commit the parties to abide by it, but which at various stages will be used as the basis on which National Electricity Transmission System outages will be planned.

Final Operational Notification or FON
A notification from NGET to a Generator or DC Converter Station owner confirming that the User has demonstrated compliance:

(a) with the Grid Code, (or where they apply, that relevant derogations have been granted), and

(b) where applicable, with Appendices F1 to F5 of the Bilateral Agreement,

in each case in respect of the Plant and Apparatus specified in such notification.

Final Physical Notification Data
Has the meaning set out in the BSC.

Final Report
A report prepared by the Test Proposer at the conclusion of a System Test for submission to NGET (if it did not propose the System Test) and other members of the Test Panel.

Financial Year
Bears the meaning given in Condition A1 (Definitions and Interpretation) of NGET’s Transmission Licence.

Flicker Severity (Long Term)
A value derived from 12 successive measurements of Flicker Severity (Short Term) (over a two hour period) and a calculation of the cube root of the mean sum of the cubes of 12 individual measurements, as further set out in Engineering Recommendation P28 as current at the Transfer Date.

Flicker Severity (Short Term)
A measure of the visual severity of flicker derived from the time series output of a flickermeter over a 10 minute period and as such provides an indication of the risk of Customer complaints.

Forecast Data
Those items of Standard Planning Data and Detailed Planning Data which will always be forecast.
**Frequency**
The number of alternating current cycles per second (expressed in Hertz) at which a **System** is running.

**Frequency Sensitive AGR Unit**
Each **Generating Unit** in an **Existing AGR Plant** for which the **Generator** has notified **NGET** that it has a safety case agreed with the Nuclear Installations Inspectorate enabling it to operate in **Frequency Sensitive Mode**, to the extent that such unit is within its **Frequency Sensitive AGR Unit Limit**. Each such **Generating Unit** shall be treated as if it were operating in accordance with BC3.5.1 provided that it is complying with its **Frequency Sensitive AGR Unit Limit**.

**Frequency Sensitive AGR Unit Limit**
In respect of each **Frequency Sensitive AGR Unit**, 8 (or such lower number which when added to the number of instances of flexibility for the purposes of assisting in a period of low **System** or **Localised NRAPM** totals 8) instances of reduction of output in any calendar year as instructed by **NGET** in relation to operation in **Frequency Sensitive Mode** (or such greater number as may be agreed between **NGET** and the **Generator**), for the purpose of assisting with **Frequency** control, provided the level of operation of each **Frequency Sensitive AGR Unit** in **Frequency Sensitive Mode** shall not be outside that agreed by the Nuclear Installations Inspectorate in the relevant safety case.

**Frequency Sensitive Mode**
A **Genset** operating mode which will result in **Active Power** output changing, in response to a change in **System Frequency**, in a direction which assists in the recovery to **Target Frequency**, by operating so as to provide **Primary Response** and/or **Secondary Response** and/or **High Frequency Response**.

**Fuel Security Code**
The document of that title designated as such by the **Secretary of State**, as from time to time amended.

**Gas Turbine Unit**
A **Generating Unit** driven by a gas turbine (for instance by an aero-engine).

**Gas Zone Diagram**
A single line diagram showing boundaries of, and interfaces between, gas-insulated **HV Apparatus** modules which comprise part, or the whole, of a substation at a **Connection Site** (or in the case of **OTSDUW Plant and Apparatus**, **Transmission Interface Site**), together with the associated stop valves and gas monitors required for the safe operation of the **National Electricity Transmission System** or the **User System**, as the case may be.

**Gate Closure**
Has the meaning set out in the **BSC**.

**GC Modification Proposal**
A proposal to modify the **Grid Code** which is not rejected pursuant to the terms of the **Grid Code** and has not yet been implemented.

**General Conditions or GC**
That portion of the Grid Code which is identified as the **General Conditions**.

**Generating Plant Demand Margin**
The difference between **Output Usable** and forecast **Demand**.

**Generating Unit**
An **Onshore Generating Unit** and/or an **Offshore Generating Unit**.
Generating Unit Data

The **Physical Notification, Export and Import Limits** and **Other Relevant Data** only in respect of each **Generating Unit**:

(a) which forms part of the **BM Unit** which represents that **Cascade Hydro Scheme**;

(b) at an **Embedded Exemptable Large Power Station**, where the relevant **Bilateral Agreement** specifies that compliance with **BC1** and/or **BC2** is required:

(i) to each **Generating Unit**, or

(ii) to each **Power Park Module** where the **Power Station** comprises **Power Park Modules**

**Generation Capacity**

Has the meaning set out in the **BSC**.

**Generation Planning Parameters**

Those parameters listed in Appendix 2 of **OC2**.

**Generator**

A person who generates electricity under licence or exemption under the **Act** acting in its capacity as a generator in **Great Britain** or **Offshore**.

**Generator Performance Chart**

A diagram which shows the MW and Mvar capability limits within which a **Generating Unit** will be expected to operate under steady state conditions.

**Genset**

A **Generating Unit**, **Power Park Module** or **CCGT Module** at a **Large Power Station** or any **Generating Unit**, **Power Park Module** or **CCGT Module** which is directly connected to the **National Electricity Transmission System**.

**Good Industry Practice**

The exercise of that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances.

**Governor Deadband**

The total magnitude of the change in steady state speed (expressed as a range of Hz (± x Hz) where "x" is a numerical value) within which there is no resultant change in the position of the governing valves of the speed/load Governing System.

**Great Britain** or **GB**

The landmass of England and Wales and Scotland, including internal waters.

**Grid Code Review Panel** or **Panel**

The panel with the functions set out in **GC.4**.

**Grid Entry Point**

An **Onshore Grid Entry Point** or an **Offshore Grid Entry Point**.

**Grid Supply Point**

A point of supply from the **National Electricity Transmission System** to **Network Operators** or **Non-Embedded Customers**.

**Group**

Those **National Electricity Transmission System** sub-stations bounded solely by the faulted circuit(s) and the overloaded circuit(s) excluding any third party connections between the **Group** and the rest of the **National Electricity Transmission System**, the faulted circuit(s) being a **Secured Event**.
High Frequency Response

An automatic reduction in Active Power output in response to an increase in System Frequency above the Target Frequency (or such other level of Frequency as may have been agreed in an Ancillary Services Agreement). This reduction in Active Power output must be in accordance with the provisions of the relevant Ancillary Services Agreement which will provide that it will be released increasingly with time over the period 0 to 10 seconds from the time of the Frequency increase on the basis set out in the Ancillary Services Agreement and fully achieved within 10 seconds of the time of the start of the Frequency increase and it must be sustained at no lesser reduction thereafter. The interpretation of the High Frequency Response to a + 0.5 Hz frequency change is shown diagrammatically in Figure CC.A.3.3.

High Voltage or HV

For E&W Transmission Systems, a voltage exceeding 650 volts. For Scottish Transmission Systems, a voltage exceeding 1000 volts.

HV Connections

Apparatus connected at the same voltage as that of the National Electricity Transmission System, including Users’ circuits, the higher voltage windings of Users’ transformers and associated connection Apparatus.

HP Turbine Power Fraction

Ratio of steady state mechanical power delivered by the HP turbine to the total steady state mechanical power delivered by the total steam turbine at Registered Capacity.

IEC

International Electrotechnical Commission.

IEC Standard

A standard approved by the International Electrotechnical Commission.

Implementing Safety Co-ordinator


Import Usable

That portion of Registered Import Capacity which is expected to be available and which is not unavailable due to a Planned Outage.

Incident Centre

A centre established by NGET or a User as the focal point in NGET or in that User, as the case may be, for the communication and dissemination of information between the senior management representatives of NGET, or of that User, as the case may be, and the relevant other parties during a Joint System Incident in order to avoid overloading NGET’s, or that User’s, as the case may be, existing operational/control arrangements.

Indicated Constraint Boundary Margin

The difference between a constraint boundary transfer limit and the difference between the sum of BM Unit Maximum Export Limits and the forecast of local Demand within the constraint boundary.

Indicated Imbalance

The difference between the sum of Physical Notifications for BM Units comprising Generating Units or CCGT Modules and the forecast of Demand for the whole or any part of the System.

Indicated Margin

The difference between the sum of BM Unit Maximum Export Limits submitted and the forecast of Demand for the whole or any part of the System.

Instructor Facilities

A device or system which gives certain Transmission Control Centre instructions with an audible or visible alarm, and incorporates the means to return message acknowledgements to the Transmission Control Centre.
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Equipment Test or IET</td>
<td>A test on equipment, associated with <strong>Plant</strong> and/or <strong>Apparatus</strong>, which takes place when that <strong>Plant</strong> and/or <strong>Apparatus</strong> forms part of a <strong>Synchronised System</strong> and which, in the reasonable judgement of the person wishing to perform the test, may cause an <strong>Operational Effect</strong>.</td>
</tr>
<tr>
<td>Interconnection Agreement</td>
<td>An agreement made between <strong>NGET</strong> and an <strong>Externally Interconnected System Operator</strong> and/or an <strong>Interconnector User</strong> and/or other relevant persons for the <strong>External Interconnection</strong> relating to an <strong>External Interconnection</strong> and/or an agreement under which an <strong>Interconnector User</strong> can use an <strong>External Interconnection</strong>.</td>
</tr>
<tr>
<td>Interconnector Export Capacity</td>
<td>In relation to an <strong>External Interconnection</strong> means the (daily or weekly) forecast value (in MW) at the time of the (daily or weekly) peak demand, of the maximum level at which the <strong>External Interconnection</strong> can export to the <strong>Grid Entry Point</strong>.</td>
</tr>
<tr>
<td>Interconnector Import Capacity</td>
<td>In relation to an <strong>External Interconnection</strong> means the (daily or weekly) forecast value (in MW) at the time of the (daily or weekly) peak demand of the maximum level at which the <strong>External Interconnection</strong> can import from the <strong>Grid Entry Point</strong>.</td>
</tr>
<tr>
<td>Interconnector Owner</td>
<td>Has the meaning given to the term in the <strong>Connection and Use of System Code</strong>.</td>
</tr>
<tr>
<td>Interconnector User</td>
<td>Has the meaning set out in the <strong>BSC</strong>.</td>
</tr>
<tr>
<td>Interface Agreement</td>
<td>Has the meaning set out in the <strong>CUSC</strong>.</td>
</tr>
<tr>
<td>Interface Point</td>
<td>As the context admits or requires either;</td>
</tr>
<tr>
<td></td>
<td>(a) the electrical point of connection between an <strong>Offshore Transmission System</strong> and an <strong>Onshore Transmission System</strong>, or</td>
</tr>
<tr>
<td></td>
<td>(b) the electrical point of connection between an <strong>Offshore Transmission System</strong> and a <strong>Network Operator’s User System</strong>.</td>
</tr>
<tr>
<td>Interface Point Capacity</td>
<td>The maximum amount of <strong>Active Power</strong> transferable at the Interface Point as declared by a <strong>User</strong> under the <strong>OTSDUW Arrangements</strong> expressed in whole MW.</td>
</tr>
<tr>
<td>Interface Point Target Voltage/Power factor</td>
<td>The nominal target voltage/power factor at an Interface Point which a <strong>Network Operator</strong> requires <strong>NGET</strong> to achieve by operation of the relevant <strong>Offshore Transmission System</strong>.</td>
</tr>
<tr>
<td>Interim Operational Notification or ION</td>
<td>A notification from <strong>NGET</strong> to a <strong>Generator</strong> or <strong>DC Converter Station</strong> owner acknowledging that the <strong>User</strong> has demonstrated compliance, except for the <strong>Unresolved Issues</strong>;</td>
</tr>
<tr>
<td></td>
<td>(a) with the Grid Code, and</td>
</tr>
<tr>
<td></td>
<td>(b) where applicable, with Appendices F1 to F5 of the <strong>Bilateral Agreement</strong>.</td>
</tr>
<tr>
<td></td>
<td>in each case in respect of the <strong>Plant</strong> and <strong>Apparatus</strong> (including OTSUA) specified in such notification and provided that in the case of the <strong>OTSDUW Arrangements</strong> such notification shall be provided to a <strong>Generator</strong> in two parts dealing with the OTSUA and <strong>Generator’s Plant</strong> and <strong>Apparatus</strong> (called respectively “Interim Operational Notification Part A” or “ION A” and “Interim Operational Notification Part B” or “ION B”) as provided for in the CP.</td>
</tr>
</tbody>
</table>
Intermittent Power Source

The primary source of power for a Generating Unit that can not be considered as controllable, e.g. wind, wave or solar.

Intertripping

(a) The tripping of circuit-breaker(s) by commands initiated from Protection at a remote location independent of the state of the local Protection; or

(b) Operational Intertrippping.

Intertrip Apparatus

Apparatus which performs Intertrippping.

IP Turbine Power Fraction

Ratio of steady state mechanical power delivered by the IP turbine to the total steady state mechanical power delivered by the total steam turbine at Registered Capacity.

Isolating Device

A device for achieving Isolation.

Isolation

The disconnection of HV Apparatus (as defined in OC8A.1.6.2 and OC8B.1.7.2) from the remainder of the System in which that HV Apparatus is situated by either of the following:

(a) an Isolating Device maintained in an isolating position. The isolating position must either be:

(i) maintained by immobilising and Locking the Isolating Device in the isolating position and affixing a Caution Notice to it. Where the Isolating Device is Locked with a Safety Key, the Safety Key must be secured in a Key Safe and the Key Safe Key must be, where reasonably practicable, given to the authorised site representative of the Requesting Safety Co-Ordinator and is to be retained in safe custody. Where not reasonably practicable the Key Safe Key must be retained by the authorised site representative of the Implementing Safety Co-ordinator in safe custody; or

(ii) maintained and/or secured by such other method which must be in accordance with the Local Safety Instructions of NGET or the Safety Rules of the Relevant Transmission Licensee or that User, as the case may be; or

(b) an adequate physical separation which must be in accordance with and maintained by the method set out in the Local Safety Instructions of NGET or the Safety Rules of the Relevant Transmission Licensee or that User, as the case may be.

Joint BM Unit Data

Has the meaning set out in the BSC.

Joint System Incident

An Event wherever occurring (other than on an Embedded Medium Power Station or an Embedded Small Power Station) which, in the opinion of NGET or a User, has or may have a serious and/or widespread effect, in the case of an Event on a User(s) System(s) (other than on an Embedded Medium Power Station or Embedded Small Power Station), on the National Electricity Transmission System, and in the case of an Event on the National Electricity Transmission System, on a User(s) System(s) (other than on an Embedded Medium Power Station or Embedded Small Power Station).

Key Safe

A device for the secure retention of keys.
Key Safe Key
A key unique at a Location capable of operating a lock, other than a control lock, on a Key Safe.

Large Power Station
A Power Station which is
(a) directly connected to:
   (i) NGET’s Transmission System where such Power Station has a Registered Capacity of 100MW or more; or
   (ii) SPT’s Transmission System where such Power Station has a Registered Capacity of 30MW or more; or
   (iii) SHETL’s Transmission System where such Power Station has a Registered Capacity of 10MW or more; or
   (iv) an Offshore Transmission System where such Power Station has a Registered Capacity of 10MW or more;

or,
(b) Embedded within a User System (or part thereof) where such User System (or part thereof) is connected under normal operating conditions to:
   (i) NGET’s Transmission System and such Power Station has a Registered Capacity of 100MW or more; or
   (ii) SPT’s Transmission System and such Power Station has a Registered Capacity of 30MW or more; or
   (iii) SHETL’s Transmission System and such Power Station has a Registered Capacity of 10MW or more;

or,
(c) Embedded within a User System (or part thereof) where the User System (or part thereof) is not connected to the National Electricity Transmission System, although such Power Station is in:
   (i) NGET’s Transmission Area where such Power Station has a Registered Capacity of 100MW or more; or
   (ii) SPT’s Transmission Area where such Power Station has a Registered Capacity of 30MW or more; or
   (iii) SHETL’s Transmission Area where such Power Station has a Registered Capacity of 10MW or more;

Licence
Any licence granted to NGET or a Relevant Transmission Licensee or a User, under Section 6 of the Act.

Licence Standards
Those standards set out or referred to in Condition C17 of NGET’s Transmission Licence and/or Condition D3 and/or Condition E16 of a Relevant Transmission Licensee’s Transmission Licence.

Limited Frequency Sensitive Mode
A mode whereby the operation of the Genset (or DC Converter at a DC Converter Station exporting Active Power to the Total System) is Frequency insensitive except when the System Frequency exceeds 50.4Hz, from which point Limited High Frequency Response must be provided.
Limited High Frequency Response
A response of a Genset (or DC Converter at a DC Converter Station exporting Active Power to the Total System) to an increase in System Frequency above 50.4Hz leading to a reduction in Active Power in accordance with the provisions of BC3.7.2.

Limited Operational Notification or LON
A notification from NGET to a Generator or DC Converter Station owner stating that the User’s Plant and/or Apparatus specified in such notification may be, or is, unable to comply:

(a) with the provisions of the Grid Code specified in the notice, and

(b) where applicable, with Appendices F1 to F5 of the Bilateral Agreement,

and specifying the Unresolved Issues.

Load
The Active, Reactive or Apparent Power, as the context requires, generated, transmitted or distributed.

Loaded
Supplying electrical power to the System.

Load Factor
The ratio of the actual output of a Generating Unit to the possible maximum output of that Generating Unit.

Load Management Block
A block of Demand controlled by a Supplier or other party through the means of radio teleswitching or by some other means.

Local Joint Restoration Plan
A plan produced under OC9.4.7.12 detailing the agreed method and procedure by which a Genset at a Black Start Station (possibly with other Gensets at that Black Start Station) will energise part of the Total System and meet complementary blocks of local Demand so as to form a Power Island.

In Scotland, the plan may also: cover more than one Black Start Station; include Gensets other than those at a Black Start Station and cover the creation of one or more Power Islands.

Local Safety Instructions
For safety co-ordination in England and Wales, instructions on each User Site and Transmission Site, approved by the relevant NGET or User’s manager, setting down the methods of achieving the objectives of NGET’s or the User’s Safety Rules, as the case may be, to ensure the safety of personnel carrying out work or testing on Plant and/or Apparatus on which his Safety Rules apply and, in the case of a User, any other document(s) on a User Site which contains rules with regard to maintaining or securing the isolating position of an Isolating Device, or maintaining a physical separation or maintaining or securing the position of an Earthing Device.

Local Switching Procedure
A procedure produced under OC7.6 detailing the agreed arrangements in respect of carrying out of Operational Switching at Connection Sites and parts of the National Electricity Transmission System adjacent to those Connection Sites.

Localised Negative Reserve Active Power Margin or Localised NRAPM
That margin of Active Power sufficient to allow transfers to and from a System Constraint Group (as the case may be) to be contained within such reasonable limit as NGET may determine.

Location
Any place at which Safety Precautions are to be applied.
Locked
A condition of HV Apparatus that cannot be altered without the operation of a locking device.

Locking
The application of a locking device which enables HV Apparatus to be Locked.

Low Frequency Relay
Has the same meaning as Under Frequency Relay.

Low Voltage or LV
For E&W Transmission Systems a voltage not exceeding 250 volts. For Scottish Transmission Systems, a voltage exceeding 50 volts but not exceeding 1000 volts.

LV Side of the Offshore Platform
Unless otherwise specified in the Bilateral Agreement, the busbar on the Offshore Platform (typically 33kV) at which the relevant Offshore Grid Entry Point is located.

Main Protection
Protection equipment or system expected to have priority in initiating either a fault clearance or an action to terminate an abnormal condition in a power system.

Manufacturer’s Data & Performance Report
A report submitted by a manufacturer to NGET relating to a specific version of a Power Park Unit demonstrating the performance characteristics of such Power Park Unit in respect of which NGET has evaluated its relevance for the purposes of the Compliance Processes.

Market Suspension Threshold
Has the meaning given to the term ‘Market Suspension Threshold’ in Section G of the BSC.

Material Effect
An effect causing NGET or a Relevant Transmission Licensee to effect any works or to alter the manner of operation of Transmission Plant and/or Transmission Apparatus at the Connection Site (which term shall, in this definition and in the definition of “Modification” only, have the meaning ascribed thereto in the CUSC) or the site of connection or a User to effect any works or to alter the manner of operation of its Plant and/or Apparatus at the Connection Site or the site of connection which in either case involves that party in expenditure of more than £10,000.

Maximum Export Capacity
The maximum continuous Apparent Power expressed in MVA and maximum continuous Active Power expressed in MW which can flow from an Offshore Transmission System connected to a Network Operator’s User System, to that User System.

Maximum Generation Service or MGS
A service utilised by NGET in accordance with the CUSC and the Balancing Principles Statement in operating the Total System.

Maximum Generation Service Agreement
An agreement between a User and NGET for the payment by NGET to that User in respect of the provision by such User of a Maximum Generation Service.

Maximum Import Capacity
The maximum continuous Apparent Power expressed in MVA and maximum continuous Active Power expressed in MW which can flow from an Offshore Transmission System connected to a Network Operator’s User System, to that User System.
Medium Power Station

A Power Station which is

(a) directly connected to NGET’s Transmission System where such Power Station has a Registered Capacity of 50MW or more but less than 100MW;

or,

(b) Embedded within a User System (or part thereof) where such User System (or part thereof) is connected under normal operating conditions to NGET’s Transmission System and such Power Station has a Registered Capacity of 50MW or more but less than 100MW;

or,

(c) Embedded within a User System (or part thereof) where the User System (or part thereof) is not connected to the National Electricity Transmission System, although such Power Station is in NGET’s Transmission Area and such Power Station has a Registered Capacity of 50MW or more but less than 100MW.

Medium Voltage or MV

For E&W Transmission Systems a voltage exceeding 250 volts but not exceeding 650 volts.

Mills

Milling plant which supplies pulverised fuel to the boiler of a coal fired Power Station.

Minimum Generation

The minimum output (in whole MW) which a Genset can generate or DC Converter at a DC Converter Station can import or export to the Total System under stable operating conditions, as registered with NGET under the PC (and amended pursuant to the PC). For the avoidance of doubt, the output may go below this level as a result of operation in accordance with BC3.7.

Minimum Import Capacity

The minimum input (in whole MW) into a DC Converter at a DC Converter Station (in any of its operating configurations) at the Onshore Grid Entry Point (or in the case of an Embedded DC Converter at the User System Entry Point) at which a DC Converter can operate in a stable manner, as registered with NGET under the PC (and amended pursuant to the PC).

Modification

Any actual or proposed replacement, renovation, modification, alteration or construction by or on behalf of a User or NGET to either that User’s Plant or Apparatus or Transmission Plant or Apparatus, as the case may be, or the manner of its operation which has or may have a Material Effect on NGET or a User, as the case may be, at a particular Connection Site.

Mothballed DC Converter at a DC Converter Station

A DC Converter at a DC Converter Station that has previously imported or exported power which the DC Converter Station owner plans not to use to import or export power for the remainder of the current Financial Year but which could be returned to service.

Mothballed Generating Unit

A Generating Unit that has previously generated which the Generator plans not to use to generate for the remainder of the current NGET Financial Year but which could be returned to service.

Mothballed Power Park Module

A Power Park Module that has previously generated which the Generator plans not to use to generate for the remainder of the current Financial Year but which could be returned to service.
<table>
<thead>
<tr>
<th><strong>Multiple Point of Connection</strong></th>
<th>A double (or more) <strong>Point of Connection</strong>, being two (or more) <strong>Points of Connection</strong> interconnected to each other through the <strong>User’s System</strong>.</th>
</tr>
</thead>
</table>
| **National Demand** | The amount of electricity supplied from the **Grid Supply Points** plus:-
- that supplied by **Embedded Large Power Stations**, and
- **National Electricity Transmission System Losses**, minus:-
- the **Demand** taken by **Station Transformers** and **Pumped Storage Units’**
and, for the purposes of this definition, does not include:-
- any exports from the **National Electricity Transmission System across External Interconnections**. |
| **National Electricity Transmission System** | The **Onshore Transmission System** and, where owned by **Offshore Transmission Licensees**, **Offshore Transmission Systems**. |
| **National Electricity Transmission System Demand** | The amount of electricity supplied from the **Grid Supply Points** plus:-
- that supplied by **Embedded Large Power Stations**, and
- **exports from the National Electricity Transmission System across External Interconnections, and**
- **National Electricity Transmission System Losses**, and, for the purposes of this definition, includes:-
- the **Demand** taken by **Station Transformers** and **Pumped Storage Units**. |
| **National Electricity Transmission System Losses** | The losses of electricity incurred on the **National Electricity Transmission System**. |
| **National Electricity Transmission System Operator Area** | Has the meaning set out in Schedule 1 of **NGET’s Transmission Licence**. |
| **National Electricity Transmission System Study Network Data File** | A computer file produced by **NGET** which in **NGET’s view provides an appropriate representation of the National Electricity Transmission System** for a specific point in time. The computer file will contain information and data on **Demand** on the **National Electricity Transmission System** and on **Large Power Stations** including **Genset power output consistent with Output Usable** and **NGET’s view of prevailing system conditions**. |
| **National Electricity Transmission System Warning** | A warning issued by **NGET** to **Users** (or to certain **Users only**) in accordance with OC7.4.8.2, which provides information relating to **System conditions or Events** and is intended to:
(a) alert **Users** to possible or actual **Plant shortage, System problems** and/or **Demand reductions**;
(b) inform of the applicable period;
(c) indicate intended consequences for **Users**; and
(d) enable specified **Users** to be in a state of readiness to receive instructions from **NGET**. |
National Electricity Transmission System Warning - Demand Control Imminent
A warning issued by NGET, in accordance with OC7.4.8.7, which is intended to provide short term notice, where possible, to those Users who are likely to receive Demand reduction instructions from NGET within 30 minutes.

National Electricity Transmission System Warning - High Risk of Demand Reduction
A warning issued by NGET, in accordance with OC7.4.8.6, which is intended to alert recipients that there is a high risk of Demand reduction being implemented and which may normally result from an inadequate System Margin.

National Electricity Transmission System Warning - Inadequate System Margin
A warning issued by NGET, in accordance with OC7.4.8.5, which is intended to alert recipients of an inadequate System Margin and which if not improved may result in Demand reduction being instructed.

National Electricity Transmission System Warning - Risk of System Disturbance
A warning issued by NGET, in accordance with OC7.4.8.8, which is intended to alert Users of the risk of widespread and serious System disturbance which may affect Users.

Network Data
The data to be provided by NGET to Users in accordance with the PC, as listed in Part 3 of the Appendix to the PC.

Network Operator
A person with a User System directly connected to the National Electricity Transmission System to which Customers and/or Power Stations (not forming part of the User System) are connected, acting in its capacity as an operator of the User System, but shall not include a person acting in the capacity of an Externally Interconnected System Operator or a Generator in respect of OTSUA.

NGET
National Grid Electricity Transmission plc (NO: 236 6977) whose registered office is at 1-3 Strand, London, WC2N 5EH.

NGET Control Engineer
The nominated person employed by NGET to direct the operation of the National Electricity Transmission System or such person as nominated by NGET.

NGET Operational Strategy
NGET’s operational procedures which form the guidelines for operation of the National Electricity Transmission System.

No-Load Field Voltage
Shall have the meaning ascribed to that term in IEC 34-16-1:1991 [equivalent to British Standard BS4999 Section 116.1 : 1992].

No System Connection
As defined in OC8A.1.6.2 and OC8B.1.7.2

Notification of User’s Intention to Synchronise
A notification from a Generator or DC Converter Station owner to NGET informing NGET of the date upon which any OTSUA, a Generating Unit(s), CCGT Module(s), Power Park Module(s) or DC Converter(s) will be ready to be Synchronised to the Total System.

Non-Embedded Customer
A Customer in Great Britain, except for a Network Operator acting in its capacity as such, receiving electricity direct from the Onshore Transmission System irrespective of from whom it is supplied.

Non-Synchronous Generating Unit
An Onshore Non-Synchronous Generating Unit or Offshore Non-Synchronous Generating Unit.

Normal CCGT Module
A CCGT Module other than a Range CCGT Module.

Novel Unit
A tidal, wave, wind, geothermal, or any similar, Generating Unit.
OC9 De-synchronised Island Procedure

Has the meaning set out in OC9.5.4.

Offshore

Means wholly or partly in Offshore Waters, and when used in conjunction with another term and not defined means that the associated term is to be read accordingly.

Offshore DC Converter

Any User Apparatus located Offshore used to convert alternating current electricity to direct current electricity, or vice versa. An Offshore DC Converter is a standalone operative configuration at a single site comprising one or more converter bridges, together with one or more converter transformers, converter control equipment, essential protective and switching devices and auxiliaries, if any, used for conversion.

Offshore Development Information Statement

A statement prepared by NGET in accordance with Special Condition C4 of NGET’s Transmission Licence.

Offshore Generating Unit

Unless otherwise provided in the Grid Code, any Apparatus located Offshore which produces electricity, including, an Offshore Synchronous Generating Unit and Offshore Non-Synchronous Generating Unit.

Offshore Grid Entry Point

In the case of:-

(a) an Offshore Generating Unit or an Offshore DC Converter, as the case may be, which is directly connected to an Offshore Transmission System, the point at which it connects to that Offshore Transmission System, or;

(b) an Offshore Power Park Module which is directly connected to an Offshore Transmission System, the point where one Power Park String (registered by itself as a Power Park Module) or the collection of points where a number of Offshore Power Park Strings (registered as a single Power Park Module) connects to that Offshore Transmission System, or;

(c) an External Interconnection which is directly connected to an Offshore Transmission System, the point at which it connects to that Offshore Transmission System.

Offshore Non-Synchronous Generating Unit

An Offshore Generating Unit that is not an Offshore Synchronous Generating Unit including for the avoidance of doubt a Power Park Unit located Offshore.

Offshore Platform

A single structure comprising of Plant and Apparatus located Offshore which includes one or more Offshore Grid Entry Points.

Offshore Power Park Module

A collection of one or more Offshore Power Park Strings (registered as a Power Park Module under the PC). There is no limit to the number of Power Park Strings within the Power Park Module, so long as they either:

(a) connect to the same busbar which cannot be electrically split; or

(b) connect to a collection of directly electrically connected busbars of the same nominal voltage and are configured in accordance with the operating arrangements set out in the relevant Bilateral Agreement.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offshore Power Park String</td>
<td>A collection of Offshore Generating Units that are powered by an Intermittent Power Source, joined together by cables forming part of a User System with a single point of connection to an Offshore Transmission System. The connection to an Offshore Transmission System may include a DC Converter.</td>
</tr>
<tr>
<td>Offshore Synchronous Generating Unit</td>
<td>An Offshore Generating Unit in which, under all steady state conditions, the rotor rotates at a mechanical speed equal to the electrical frequency of the National Electricity Transmission System divided by the number of pole pairs of the Generating Unit.</td>
</tr>
<tr>
<td>Offshore Tender Process</td>
<td>The process followed by the Authority to make, in prescribed cases, a determination on a competitive basis of the person to whom an offshore transmission licence is to be granted.</td>
</tr>
<tr>
<td>Offshore Transmission Distribution Connection Agreement</td>
<td>An agreement entered into by NGET and a Network Operator in respect of the connection to and use of a Network Operator’s User System by an Offshore Transmission System.</td>
</tr>
<tr>
<td>Offshore Transmission Licensee</td>
<td>Such person in relation to whose Transmission Licence the standard conditions in Section E (offshore transmission owner standard conditions) of such Transmission Licence have been given effect, or any person in that prospective role who has acceded to the STC.</td>
</tr>
<tr>
<td>Offshore Transmission System</td>
<td>A system consisting (wholly or mainly) of high voltage electric lines and used for the transmission of electricity from one Power Station to a substation or to another Power Station or between sub-stations, and includes any Plant and Apparatus (including OTSUA) and meters in connection with the transmission of electricity but does not include any Remote Transmission Assets. An Offshore Transmission System extends from the Interface Point, or the Offshore Grid Entry Point(s) and may include Plant and Apparatus located Onshore and Offshore and, where the context permits, references to the Offshore Transmission System includes OTSUA.</td>
</tr>
<tr>
<td>Offshore Waters</td>
<td>Has the meaning given to “offshore waters” in Section 90(9) of the Energy Act 2004.</td>
</tr>
<tr>
<td>Offshore Works Assumptions</td>
<td>In relation to a particular User means those assumptions set out in Appendix P of the relevant Construction Agreement as amended from time to time.</td>
</tr>
<tr>
<td>Onshore</td>
<td>Means within Great Britain, and when used in conjunction with another term and not defined means that the associated term is to be read accordingly.</td>
</tr>
<tr>
<td>Onshore DC Converter</td>
<td>Any User Apparatus located Onshore with a Completion Date after 1st April 2005 used to convert alternating current electricity to direct current electricity, or vice versa. An Onshore DC Converter is a standalone operative configuration at a single site comprising one or more converter bridges, together with one or more converter transformers, converter control equipment, essential protective and switching devices and auxiliaries, if any, used for conversion. In a bipolar arrangement, an Onshore DC Converter represents the bipolar configuration.</td>
</tr>
<tr>
<td>Onshore Generating Unit</td>
<td>Unless otherwise provided in the Grid Code, any Apparatus located Onshore which produces electricity, including, an Onshore Synchronous Generating Unit and Onshore Non-Synchronous Generating Unit.</td>
</tr>
</tbody>
</table>
Onshore Grid Entry Point
A point at which a Onshore Generating Unit or a CCGT Module or a CCGT Unit or a Onshore DC Converter or a Onshore Power Park Module or an External Interconnection, as the case may be, which is directly connected to the Onshore Transmission System connects to the Onshore Transmission System.

Onshore Non-Synchronous Generating Unit
A Generating Unit located Onshore that is not a Synchronous Generating Unit including for the avoidance of doubt a Power Park Unit located Onshore.

Onshore Power Park Module
A collection of Non-Synchronous Generating Units (registered as a Power Park Module under the PC) that are powered by an Intermittent Power Source, joined together by a System with a single electrical point of connection directly to the Onshore Transmission System (or User System if Embedded) with no intermediate Offshore Transmission System connections. The connection to the Onshore Transmission System (or User System if Embedded) may include a DC Converter.

Onshore Synchronous Generating Unit
An Onshore Generating Unit including, for the avoidance of doubt, a CCGT Unit in which, under all steady state conditions, the rotor rotates at a mechanical speed equal to the electrical frequency of the National Electricity Transmission System divided by the number of pole pairs of the Generating Unit.

Onshore Transmission Licensee
NGET, SPT, or SHETL.

Onshore Transmission System
The system consisting (wholly or mainly) of high voltage electric lines owned or operated by Onshore Transmission Licensees and used for the transmission of electricity from one Power Station to a substation or to another Power Station or between substations or to or from Offshore Transmission Systems or to or from any External Interconnection, and includes any Plant and Apparatus and meters owned or operated by any Onshore Transmission Licensee in connection with the transmission of electricity but does not include any Remote Transmission Assets.

On-Site Generator Site
A site which is determined by the BSC Panel to be a Trading Unit under the BSC by reason of having fulfilled the Class 1 or Class 2 requirements as such terms are used in the BSC.

Operating Code or OC
That portion of the Grid Code which is identified as the Operating Code.

Operating Margin
Contingency Reserve plus Operating Reserve.

Operating Reserve
The additional output from Large Power Stations or the reduction in Demand, which must be realisable in real-time operation to respond in order to contribute to containing and correcting any System Frequency fall to an acceptable level in the event of a loss of generation or a loss of import from an External Interconnection or mismatch between generation and Demand.

Operation
A scheduled or planned action relating to the operation of a System (including an Embedded Power Station).

Operational Data
Data required under the Operating Codes and/or Balancing Codes.

Operational Day
The period from 0500 hours on one day to 0500 on the following day.
Operation Diagrams
Diagrams which are a schematic representation of the HV Apparatus and the connections to all external circuits at a Connection Site (and in the case of OTSDUW, Transmission Interface Site), incorporating its numbering, nomenclature and labelling.

Operational Effect
Any effect on the operation of the relevant other System which causes the National Electricity Transmission System or the System of the other User or Users, as the case may be, to operate (or be at a materially increased risk of operating) differently to the way in which they would or may have operated in the absence of that effect.

Operational Intertripping
The automatic tripping of circuit-breakers to prevent abnormal system conditions occurring, such as over voltage, overload, System instability, etc. after the tripping of other circuit-breakers following power System fault(s) which includes System to Generating Unit, System to CCGT Module, System to Power Park Module, System to DC Converter and System to Demand intertripping schemes.

Operational Notifications
Any Energisation Operational Notification, Interim Operational Notification, Final Operational Notification or Limited Operational Notification issued from NGET to a User.

Operational Planning
Planning through various timescales the matching of generation output with forecast National Electricity Transmission System Demand together with a reserve of generation to provide a margin, taking into account outages of certain Generating Units, of parts of the National Electricity Transmission System and of parts of User Systems to which Power Stations and/or Customers are connected, carried out to achieve, so far as possible, the standards of security set out in NGET’s Transmission Licence, each Relevant Transmission Licensee’s Transmission Licence or Electricity Distribution Licence, as the case may be.

Operational Planning Margin
An operational planning margin set by NGET.

Operational Planning Phase
The period from 8 weeks to the end of the 5th year ahead of real time operation.

Operational Procedures
Management instructions and procedures, both in support of the Safety Rules and for the local and remote operation of Plant and Apparatus, issued in connection with the actual operation of Plant and/or Apparatus at or from a Connection Site.

Operational Switching
Operation of Plant and/or Apparatus to the instruction of the relevant Control Engineer. For the avoidance of doubt, the operation of Transmission Plant and/or Apparatus forming part of the National Electricity Transmission System in England and Wales, will be to the instruction of NGET and in Scotland and Offshore will be to the instruction of the Relevant Transmission Licensee.

Other Relevant Data
The data listed in BC1.4.2(f) under the heading Other Relevant Data.

Offshore Transmission System Development User Works or OTSDUW
In relation to a particular User where the OTSDUW Arrangements apply, means those activities and/or works for the design, planning, consenting and/or construction and installation of the Offshore Transmission System to be undertaken by the User as identified in Part 2 of Appendix I of the relevant Construction Agreement.
OTSDUW Arrangements

The arrangements whereby certain aspects of the design, consenting, construction, installation and/or commissioning of transmission assets are capable of being undertaken by a User prior to the transfer of those assets to a Relevant Transmission Licensee under an Offshore Tender Process.

OTSDUW Data and Information

The data and information to be provided by Users undertaking OTSDUW, to NGET in accordance with Appendix F of the Planning Code.

OTSDUW DC Converter

A Transmission DC Converter designed and/or constructed and/or installed by a User under the OTSDUW Arrangements and/or operated by the User until the OTSUA Transfer Time.

OTSDUW Development and Data Timetable

The timetable for both the delivery of OTSDUW Data and Information and OTSDUW Network Data and Information as referred to in Appendix F of the Planning Code and the development of the scope of the OTSDUW.

OTSDUW Network Data and Information

The data and information to be provided by NGET to Users undertaking OTSDUW in accordance with Appendix F of the Planning Code.

OTSDUW Plant and Apparatus

Plant and Apparatus, including any OTSDUW DC Converter, designed by the User under the OTSDUW Arrangements.

Offshore Transmission System User Assets or OTSUA

OTSDUW Plant and Apparatus constructed and/or installed by a User under the OTSDUW Arrangements which form an Offshore Transmission System that once transferred to a Relevant Transmission Licensee under an Offshore Tender Process will become part of the National Electricity Transmission System.

OTSUA Transfer Time

The time and date at which the OTSUA are transferred to a Relevant Transmission Licensee.

Out of Synchronism

The condition where a System or Generating Unit cannot meet the requirements to enable it to be Synchronised.

Output Usable or OU

The (daily or weekly) forecast value (in MW), at the time of the (daily or weekly) peak demand, of the maximum level at which the Genset can export to the Grid Entry Point, or in the case of Embedded Power Stations, to the User System Entry Point. In addition, for a Genset powered by an Intermittent Power Source the forecast value is based upon the Intermittent Power Source being at a level which would enable the Genset to generate at Registered Capacity.

For the purpose of OC2 only, the term Output Usable shall include the terms Interconnector Export Capacity and Interconnector Import Capacity where the term Output Usable is being applied to an External Interconnection.

Over-excitation Limiter

Shall have the meaning ascribed to that term in IEC 34-16-1:1991 [equivalent to British Standard BS4999 Section 116.1 : 1992].

Part 1 System Ancillary Services

Ancillary Services which are required for System reasons and which must be provided by Users in accordance with the Connection Conditions. An exhaustive list of Part 1 System Ancillary Services is included in that part of CC.8.1 headed Part 1.
Part 2 System Ancillary Services

Ancillary Services which are required for System reasons and which must be provided by a User if the User has agreed to provide them under a Bilateral Agreement. A non-exhaustive list of Part 2 System Ancillary Services is included in that part of CC.8.1 headed Part 2.

Part Load

The condition of a Genset, or Cascade Hydro Scheme which is Loaded but is not running at its Maximum Export Limit.

Permit for Work for proximity work

In respect of E&W Transmission Systems, a document issued by the Relevant E&W Transmission Licensee or an E&W User in accordance with its respective Safety Rules to enable work to be carried out in accordance with OC8A.8 and which provides for Safety Precautions to be applied and maintained. An example format of a Relevant E&W Transmission Licensee's permit for work is attached as Appendix E to OC8A.

In respect of Scottish Transmission Systems, a document issued by a Relevant Scottish Transmission Licensee or a Scottish User in accordance with its respective Safety Rules to enable work to be carried out in accordance with OC8B.8 and which provides for Safety Precautions to be applied and maintained. Example formats of Relevant Scottish Transmission Licensees' permits for work are attached as Appendix E to OC8B.

Partial Shutdown

The same as a Total Shutdown except that all generation has ceased in a separate part of the Total System and there is no electricity supply from External Interconnections or other parts of the Total System to that part of the Total System and, therefore, that part of the Total System is shutdown, with the result that it is not possible for that part of the Total System to begin to function again without NGET’s directions relating to a Black Start.

Phase (Voltage) Unbalance

The ratio (in percent) between the rms values of the negative sequence component and the positive sequence component of the voltage.

Physical Notification

Data that describes the BM Participant’s best estimate of the expected input or output of Active Power of a BM Unit and/or (where relevant) Generating Unit, the accuracy of the Physical Notification being commensurate with Good Industry Practice.

Planning Code or PC

That portion of the Grid Code which is identified as the Planning Code.

Planned Maintenance Outage

An outage of NGET electronic data communication facilities as provided for in CC.6.5.8 and NGET’s associated computer facilities of which normally at least 5 days notice is given, but in any event of which at least twelve hours notice has been given by NGET to the User and which is anticipated to last no longer than 2 hours. The length of such an outage may in exceptional circumstances be extended where at least 24 hours notice has been given by NGET to the User. It is anticipated that normally any planned outage would only last around one hour.

Planned Outage

An outage of a Large Power Station or of part of the National Electricity Transmission System, or of part of a User System, co-ordinated by NGET under OC2.

Plant

Fixed and movable items used in the generation and/or supply and/or transmission of electricity, other than Apparatus.
Point of Common Coupling
That point on the National Electricity Transmission System electrically nearest to the User installation at which either Demands or Loads are, or may be, connected.

Point of Connection
An electrical point of connection between the National Electricity Transmission System and a User's System.

Point of Isolation
The point on Apparatus (as defined in OC8A.1.6.2 and OC8B.1.7.2) at which Isolation is achieved.

Post-Control Phase
The period following real time operation.

Power Factor
The ratio of Active Power to Apparent Power.

Power Island
Gensets at an isolated Power Station, together with complementary local Demand. In Scotland a Power Island may include more than one Power Station.

Power Park Module
Any Onshore Power Park Module or Offshore Power Park Module.

Power Park Module Availability Matrix
The matrix described in Appendix 1 to BC1 under the heading Power Park Module Availability Matrix.

Power Park Module Planning Matrix
A matrix in the form set out in Appendix 4 of OC2 showing the combination of Power Park Units within a Power Park Module which would be expected to be running under normal conditions.

Power Park Unit
A Generating Unit within a Power Park Module.

Power Station
An installation comprising one or more Generating Units or Power Park Modules (even where sited separately) owned and/or controlled by the same Generator, which may reasonably be considered as being managed as one Power Station.

Power System Stabiliser or PSS
Equipment controlling the Exciter output via the voltage regulator in such a way that power oscillations of the synchronous machines are dampened. Input variables may be speed, frequency or power (or a combination of these).

Preface
The preface to the Grid Code (which does not form part of the Grid Code and therefore is not binding).

Preliminary Notice
A notice in writing, sent by NGET both to all Users identified by it under OC12.4.2.1 and to the Test Proposer, notifying them of a proposed System Test.

Preliminary Project Planning Data
Data relating to a proposed User Development at the time the User applies for a CUSC Contract but before an offer is made and accepted.
Primary Response

The automatic increase in Active Power output of a Genset or, as the case may be, the decrease in Active Power Demand in response to a System Frequency fall. This increase in Active Power output or, as the case may be, the decrease in Active Power Demand must be in accordance with the provisions of the relevant Ancillary Services Agreement which will provide that it will be released increasingly with time over the period 0 to 10 seconds from the time of the start of the Frequency fall on the basis set out in the Ancillary Services Agreement and fully available by the latter, and sustainable for at least a further 20 seconds. The interpretation of the Primary Response to a – 0.5 Hz frequency change is shown diagrammatically in Figure CC.A.3.2.

Programming Phase

The period between Operational Planning Phase and the Control Phase. It starts at the 8 weeks ahead stage and finishes at 17:00 on the day ahead of real time.

Proposal Notice

A notice submitted to NGET by a User which would like to undertake a System Test.

Proposal Report

A report submitted by the Test Panel which contains:

(a) proposals for carrying out a System Test (including the manner in which the System Test is to be monitored);

(b) an allocation of costs (including un-anticipated costs) between the affected parties (the general principle being that the Test Proposer will bear the costs); and

(c) such other matters as the Test Panel considers appropriate.

The report may include requirements for indemnities to be given in respect of claims and losses arising from a System Test.

Protection

The provisions for detecting abnormal conditions on a System and initiating fault clearance or actuating signals or indications.

Protection Apparatus

A group of one or more Protection relays and/or logic elements designated to perform a specified Protection function.

Pumped Storage Generator

A Generator which owns and/or operates any Pumped Storage Plant.

Pumped Storage Plant

The Dinorwig, Ffestiniog, Cruachan and Foyers Power Stations.

Pumped Storage Unit

A Generating Unit within a Pumped Storage Plant.

Quiescent Physical Notification or QPN

Data that describes the MW levels to be deducted from the Physical Notification of a BM Unit to determine a resultant operating level to which the Dynamic Parameters associated with that BM Unit apply, and the associated times for such MW levels. The MW level of the QPN must always be set to zero.

Range CCGT Module

A CCGT Module where there is a physical connection by way of a steam or hot gas main between that CCGT Module and another CCGT Module or other CCGT Modules, which connection contributes (if open) to efficient modular operation, and which physical connection can be varied by the operator.

Rated Field Voltage

Shall have the meaning ascribed to that term in IEC 34-16-1:1991 [equivalent to British Standard BS4999 Section 116.1 : 1992].
| **Rated MW** | The “rating-plate” MW output of a **Generating Unit**, **Power Park Module** or **DC Converter**, being:

(a) that output up to which the **Generating Unit** was designed to operate (Calculated as specified in **British Standard BS EN 60034 – 1: 1995**); or

(b) the nominal rating for the MW output of a **Power Park Module** being the maximum continuous electric output power which the **Power Park Module** was designed to achieve under normal operating conditions; or

(c) the nominal rating for the MW import capacity and export capacity (if at a **DC Converter Station**) of a **DC Converter**.

| **Reactive Despatch Instruction** | Has the meaning set out in the **CUSC**.

| **Reactive Despatch Network Restriction** | A restriction placed upon an **Embedded Generating Unit**, **Embedded Power Park Module** or **DC Converter** at an **Embedded DC Converter Station** by the **Network Operator** that prevents the **Generator** or **DC Converter Station** owner in question (as applicable) from complying with any **Reactive Despatch Instruction** with respect to that **Generating Unit**, **Power Park Module** or **DC Converter** at a **DC Converter Station**, whether to provide Mvars over the range referred to in CC 6.3.2 or otherwise.

| **Reactive Energy** | The integral with respect to time of the **Reactive Power**.

| **Reactive Power** | The product of voltage and current and the sine of the phase angle between them measured in units of voltamperes reactive and standard multiples thereof, ie:

1000 VAr = 1 kVAr

1000 kVAr = 1 Mvar

| **Record of Inter-System Safety Precautions or RISSP** | A written record of inter-system **Safety Precautions** to be compiled in accordance with the provisions of **OC8**.
Registered Capacity

(a) In the case of a Generating Unit other than that forming part of a CCGT Module or Power Park Module, the normal full load capacity of a Generating Unit as declared by the Generator, less the MW consumed by the Generating Unit through the Generating Unit’s Unit Transformer when producing the same (the resultant figure being expressed in whole MW, or in MW to one decimal place).

(b) In the case of a CCGT Module or Power Park Module, the normal full load capacity of the CCGT Module or Power Park Module (as the case may be) as declared by the Generator, being the Active Power declared by the Generator as being deliverable by the CCGT Module or Power Park Module at the Grid Entry Point (or in the case of an Embedded CCGT Module or Power Park Module, at the User System Entry Point), expressed in whole MW, or in MW to one decimal place.

(c) In the case of a Power Station, the maximum amount of Active Power deliverable by the Power Station at the Grid Entry Point (or in the case of an Embedded Power Station at the User System Entry Point), as declared by the Generator, expressed in whole MW, or in MW to one decimal place. The maximum Active Power deliverable is the maximum amount deliverable simultaneously by the Generating Units and/or CCGT Modules and/or Power Park Modules less the MW consumed by the Generating Units and/or CCGT Modules in producing that Active Power.

(d) In the case of a DC Converter at a DC Converter Station, the normal full load amount of Active Power transferable from a DC Converter at the Onshore Grid Entry Point (or in the case of an Embedded DC Converter Station at the User System Entry Point), as declared by the DC Converter Station owner, expressed in whole MW, or in MW to one decimal place.

(e) In the case of a DC Converter Station, the maximum amount of Active Power transferable from a DC Converter Station at the Onshore Grid Entry Point (or in the case of an Embedded DC Converter Station at the User System Entry Point), as declared by the DC Converter Station owner, expressed in whole MW, or in MW to one decimal place.

Registered Data

Those items of Standard Planning Data and Detailed Planning Data which upon connection become fixed (subject to any subsequent changes).

Registered Import Capability

In the case of a DC Converter Station containing DC Converters connected to an External System, the maximum amount of Active Power transferable into a DC Converter Station at the Onshore Grid Entry Point (or in the case of an Embedded DC Converter Station at the User System Entry Point), as declared by the DC Converter Station owner, expressed in whole MW.

In the case of a DC Converter connected to an External System and in a DC Converter Station, the normal full load amount of Active Power transferable into a DC Converter at the Onshore Grid Entry Point (or in the case of an Embedded DC Converter Station at the User System Entry Point), as declared by the DC Converter owner, expressed in whole MW.

Regulations

The Utilities Contracts Regulations 1996, as amended from time to time.
**Reheater Time Constant**

Determined at *Registered Capacity*, the reheater time constant will be construed in accordance with the principles of the IEEE Committee Report "Dynamic Models for Steam and Hydro Turbines in Power System Studies" published in 1973 which apply to such phrase.

**Relevant E&W Transmission Licensee**

As the context requires NGET and/or an *E&W Offshore Transmission Licensee*.

**Relevant Scottish Transmission Licensee**

As the context requires SPT and/or SHETL and/or a *Scottish Offshore Transmission Licensee*.

**Relevant Transmission Licensee**

Means SP Transmission Ltd (SPT) in its *Transmission Area* or Scottish Hydro-Electric Transmission Ltd (SHETL) in its *Transmission Area* or any *Offshore Transmission Licensee* in its *Transmission Area*.

**Relevant Unit**

As defined in the STC, Schedule 3.

**Remote Transmission Assets**

Any *Plant* and *Apparatus* or meters owned by NGET which:

(a) are *Embedded* in a *User System* and which are not directly connected by *Plant* and/or *Apparatus* owned by NGET to a sub-station owned by NGET; and

(b) are by agreement between NGET and such *User* operated under the direction and control of such *User*.

**Requesting Safety Co-ordinator**

The *Safety Co-ordinator* requesting *Safety Precautions*.

**Responsible Engineer/ Operator**

A person nominated by a *User* to be responsible for *System* control.

**Responsible Manager**

A manager who has been duly authorised by a *User* or NGET to sign *Site Responsibility Schedules* on behalf of that *User* or NGET, as the case may be.

For *Connection Sites* in Scotland and *Offshore* a manager who has been duly authorised by the *Relevant Transmission Licensee* to sign *Site Responsibility Schedules* on behalf of that *Relevant Transmission Licensee*.

**Re-synchronisation**

The bringing of parts of the *System* which have become *Out of Synchronism* with any other *System* back into *Synchronism*, and like terms shall be construed accordingly.

**Safety Co-ordinator**

A person or persons nominated by a *Relevant E&W Transmission Licensee* and each *E&W User* in relation to *Connection Points* (or in the case of OTSUA operational prior to the OTSUA Transfer Time, *Transmission Interface Points*) on an *E&W Transmission System* and/or by the *Relevant Scottish Transmission Licensee* and each *Scottish User* in relation to *Connection Points* (or in the case of OTSUA operational prior to the OTSUA Transfer Time, *Transmission Interface Points*) on a *Scottish Transmission System* to be responsible for the co-ordination of *Safety Precautions* at each *Connection Point* (or in the case of OTSUA operational prior to the OTSUA Transfer Time, *Transmission Interface Points*) when work (which includes testing) is to be carried out on a *System* which necessitates the provision of *Safety Precautions* on *HV Apparatus* (as defined in OC8A.1.6.2 and OC8B.1.7.2), pursuant to OC8.
Safety From The System  
That condition which safeguards persons when work is to be carried out on or near a **System** from the dangers which are inherent in the **System**.

Safety Key  
A key unique at the **Location** capable of operating a lock which will cause an **Isolating Device** and/or **Earthing Device** to be **Locked**.

Safety Log  
A chronological record of messages relating to safety co-ordination sent and received by each **Safety Co-ordinator** under **OC8**.

Safety Precautions  
The rules of **NGET** (in England and Wales) and the **Relevant Transmission Licensee** (in Scotland or **Offshore**) or a **User** that seek to ensure that persons working on **Plant** and/or **Apparatus** to which the rules apply are safeguarded from hazards arising from the **System**.

Scottish Offshore Transmission System  
An **Offshore Transmission System** with an **Interface Point** in Scotland.

Scottish Offshore Transmission Licensee  
A person who owns or operates a **Scottish Offshore Transmission System** pursuant to a **Transmission Licence**.

Scottish Transmission System  
Collectively **SPT’s Transmission System** and **SHETL’s Transmission System** and any **Scottish Offshore Transmission Systems**.

Scottish User  
A **User** in Scotland or any **Offshore User** who owns or operates **Plant** and/or **Apparatus** connected (or which will at the **OTSUA Transfer Time** be connected) to a **Scottish Offshore Transmission System**

Secondary Response  
The automatic increase in **Active Power** output of a **Genset** or, as the case may be, the decrease in **Active Power Demand** in response to a **System Frequency** fall. This increase in **Active Power** output or, as the case may be, the decrease in **Active Power Demand** must be in accordance with the provisions of the relevant **Ancillary Services Agreement** which will provide that it will be fully available by 30 seconds from the time of the start of the **Frequency** fall and be sustainable for at least a further 30 minutes. The interpretation of the **Secondary Response to a -0.5 Hz frequency change** is shown diagrammatically in Figure CC.A.3.2.

Secretary of State  
Has the same meaning as in the **Act**.

Secured Event  
Has the meaning set out in the **Security and Quality of Supply Standard**.

Security and Quality of Supply Standard  
The version of the document entitled ‘**Security and Quality of Supply Standard**’ established pursuant to the **Transmission Licence** in force at the time of entering into the relevant **Bilateral Agreement**.

Setpoint Voltage  
The value of voltage at the **Grid Entry Point**, or **User System Entry Point** if **Embedded**, on the automatic control system steady state operating characteristic, as a percentage of the nominal voltage, at which the transfer of **Reactive Power** between a **Power Park Module**, **DC Converter** or **Non-Synchronous Generating Unit** and the **Transmission System**, or **Network Operator’s system** if **Embedded**, is zero.

Settlement Period  
A period of 30 minutes ending on the hour and half-hour in each hour during a day.
Seven Year Statement  A statement, prepared by NGET in accordance with the terms of NGET’s Transmission Licence, showing for each of the seven succeeding Financial Years, the opportunities available for connecting to and using the National Electricity Transmission System and indicating those parts of the National Electricity Transmission System most suited to new connections and transport of further quantities of electricity.

SF₆ Gas Zone   A segregated zone surrounding electrical conductors within a casing containing SF₆ gas.

SHETL   Scottish Hydro-Electric Transmission Limited

Shutdown   The condition of a Generating Unit where the generator rotor is at rest or on barring.

Significant Code Review   Means a review of one or more matters which the Authority considers is likely to:
(a) relate to the Grid Code (either on its own or in conjunction with any other industry codes); and
(b) be of particular significance in relation to its principal objective and/or general duties (under section 3A of the Act), statutory functions and/or relevant obligations arising under EU law, and concerning which the Authority has issued a notice to NGET (among others, as appropriate) stating:
   (i) that the review will constitute a Significant Code Review;
   (ii) the start date of the Significant Code Review; and
   (iii) the matters that will fall within the scope of the review;

Significant Code Review Phase   Means the period commencing on the start date of a Significant Code Review as stated in the notice issued by the Authority, and ending either:
(a) on the date on which the Authority issues a statement that no directions will be issued in relation to the Grid Code; or
(b) if no statement is made under (a), and the Authority has directed NGET to raise GC Modification Proposal associated with the Significant Code Review, on the date on which NGET has raise such a GC Modification Proposal; or
(c) immediately, if neither a statement nor directions are issued by the Authority within (and including) twenty eight (28) days from the Authority’s publication of its Significant Code Review conclusions.

Significant Incident   An Event which either:
(a) was notified by a User to NGET under OC7, and which NGET considers has had or may have had a significant effect on the National Electricity Transmission System, and NGET requires the User to report that Event in writing in accordance with OC10 and notifies the User accordingly; or
(b) was notified by NGET to a User under OC7, and which that User considers has had or may have had a significant effect on that User’s System, and that User requires NGET to report that Event in writing in accordance with the provisions of OC10 and notifies NGET accordingly.
Simultaneous Tap Change

A tap change implemented on the generator step-up transformers of Synchronised Gensets, effected by Generators in response to an instruction from NGET issued simultaneously to the relevant Power Stations. The instruction, preceded by advance notice, must be effected as soon as possible, and in any event within one minute of receipt from NGET of the instruction.

Single Line Diagram

A schematic representation of a three-phase network in which the three phases are represented by single lines. The diagram shall include (but not necessarily be limited to) busbars, overhead lines, underground cables, power transformers and reactive compensation equipment. It shall also show where Large Power Stations are connected, and the points at which Demand is supplied.

Single Point of Connection

A single Point of Connection, with no interconnection through the User’s System to another Point of Connection.

Site Common Drawings

Drawings prepared for each Connection Site (and in the case of OTSDUW, Transmission Interface Site) which incorporate Connection Site (and in the case of OTSDUW, Transmission Interface Site) layout drawings, electrical layout drawings, common protection/ control drawings and common services drawings.

Site Responsibility Schedule

A schedule containing the information and prepared on the basis of the provisions set out in Appendix 1 of the CC.

Slope

The ratio of the steady state change in voltage, as a percentage of the nominal voltage, to the steady state change in Reactive Power output, in per unit of Reactive Power capability. For the avoidance of doubt, the value indicates the percentage voltage reduction that will result in a 1 per unit increase in Reactive Power generation.
Small Power Station

A Power Station which is

(a) directly connected to:

(i) NGET’s Transmission System where such Power Station has a Registered Capacity of less than 50MW; or

(ii) SPT’s Transmission System where such Power Station has a Registered Capacity of less than 30MW; or

(iii) SHETL’s Transmission System where such Power Station has a Registered Capacity of less than 10 MW; or

(iv) an Offshore Transmission System where such Power Station has a Registered Capacity of less than 10MW;

or,

(b) Embedded within a User System (or part thereof) where such User System (or part thereof) is connected under normal operating conditions to:

(i) NGET’s Transmission System and such Power Station has a Registered Capacity of less than 50MW; or

(ii) SPT’s Transmission System and such Power Station has a Registered Capacity of less than 30MW; or

(iii) SHETL’s Transmission System and such Power Station has a Registered Capacity of less than 10MW;

or,

(c) Embedded within a User System (or part thereof) where the User System (or part thereof) is not connected to the National Electricity Transmission System, although such Power Station is in:

(i) NGET’s Transmission Area and such Power Station has a Registered Capacity of less than 50MW; or

(ii) SPT’s Transmission Area and such Power Station has a Registered Capacity of less than 30MW; or

(iii) SHETL’s Transmission Area and such Power Station has a Registered Capacity of less than 10MW;

Speeder Motor Setting Range

The minimum and maximum no-load speeds (expressed as a percentage of rated speed) to which the turbine is capable of being controlled, by the speeder motor or equivalent, when the Generating Unit terminals are on open circuit.

SPT

SP Transmission Limited

Standard Planning Data

The general data required by NGET under the PC. It is generally also the data which NGET requires from a new User in an application for a CUSC Contract, as reflected in the PC.

Start Time

The time named as such in an instruction issued by NGET pursuant to the BC.

Start-Up

The action of bringing a Generating Unit from Shutdown to Synchronous Speed.

Statement of Readiness

Has the meaning set out in the Bilateral Agreement and/or Construction Agreement.
Station Board
A switchboard through which electrical power is supplied to the Auxiliaries of a Power Station, and which is supplied by a Station Transformer. It may be interconnected with a Unit Board.

Station Transformer
A transformer supplying electrical power to the Auxiliaries of

(a) a Power Station, which is not directly connected to the Generating Unit terminals (typical voltage ratios being 132/11kV or 275/11kV), or

(b) a DC Converter Station.

STC Committee
The committee established under the STC.

Steam Unit
A Generating Unit whose prime mover converts the heat-energy in steam to mechanical energy.

Subtransmission System
The part of a User's System which operates at a single transformation below the voltage of the relevant Transmission System.

Supergrid Voltage
Any voltage greater than 200kV.

Supplier
(a) A person supplying electricity under an Electricity Supply Licence; or

(b) A person supplying electricity under exemption under the Act; in each case acting in its capacity as a supplier of electricity to Customers in Great Britain.

Surplus
A MW figure relating to a System Zone equal to the total Output Usable in the System Zone:

(a) minus the forecast of Active Power Demand in the System Zone, and

(b) minus the export limit in the case of an export limited System Zone, or

plus the import limit in the case of an import limited System Zone, and

(c) (only in the case of a System Zone comprising the National Electricity Transmission System) minus the Operational Planning Margin.

For the avoidance of doubt, a Surplus of more than zero in an export limited System Zone indicates an excess of generation in that System Zone; and a Surplus of less than zero in an import limited System Zone indicates insufficient generation in that System Zone.

Synchronised
(a) The condition where an incoming Generating Unit or Power Park Module or DC Converter or System is connected to the busbars of another System so that the Frequencies and phase relationships of that Generating Unit, Power Park Module, DC Converter or System, as the case may be, and the System to which it is connected are identical, like terms shall be construed accordingly e.g. “Synchronism”.

(b) The condition where an importing BM Unit is consuming electricity.
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<thead>
<tr>
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<td>Synchronising Generation</td>
<td>The amount of MW (in whole MW) produced at the moment of synchronising.</td>
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<td>Synchronising Group</td>
<td>A group of two or more Gensets) which require a minimum time interval between their Synchronising or De-Synchronising times.</td>
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<td>Synchronous Compensation</td>
<td>The operation of rotating synchronous Apparatus for the specific purpose of either the generation or absorption of Reactive Power.</td>
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<tr>
<td>Synchronous Generating Unit</td>
<td>Any Onshore Synchronous Generating Unit or Offshore Synchronous Generating Unit.</td>
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<tr>
<td>Synchronous Speed</td>
<td>That speed required by a Generating Unit to enable it to be Synchronised to a System.</td>
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<tr>
<td>System</td>
<td>Any User System and/or the National Electricity Transmission System, as the case may be.</td>
</tr>
<tr>
<td>System Constraint</td>
<td>A limitation on the use of a System due to lack of transmission capacity or other System conditions.</td>
</tr>
<tr>
<td>System Constrained Capacity</td>
<td>That portion of Registered Capacity or Registered Import Capacity not available due to a System Constraint.</td>
</tr>
<tr>
<td>System Constraint Group</td>
<td>A part of the National Electricity Transmission System which, because of System Constraints, is subject to limits of Active Power which can flow into or out of (as the case may be) that part.</td>
</tr>
<tr>
<td>System Fault Dependability Index or Dp</td>
<td>A measure of the ability of Protection to initiate successful tripping of circuit-breakers which are associated with a faulty item of Apparatus. It is calculated using the formula:</td>
</tr>
<tr>
<td></td>
<td>( Dp = 1 - \frac{F_1}{A} )</td>
</tr>
<tr>
<td>System Margin</td>
<td>The margin in any period between</td>
</tr>
<tr>
<td></td>
<td>(a) the sum of Maximum Export Limits and</td>
</tr>
<tr>
<td></td>
<td>(b) forecast Demand and the Operating Margin,</td>
</tr>
<tr>
<td></td>
<td>for that period.</td>
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<tr>
<td>System Negative Reserve Active Power Margin or System NRAPM</td>
<td>That margin of Active Power sufficient to allow the largest loss of Load at any time.</td>
</tr>
<tr>
<td>System Operator - Transmission Owner Code or STC</td>
<td>Has the meaning set out in NGET’s Transmission Licence</td>
</tr>
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System Telephony

An alternative method by which a **User’s Responsible Engineer/Operator** and NGET Control Engineer(s) speak to one and another for the purposes of control of the **Total System** in both normal operating conditions and where practicable, emergency operating conditions.

System Tests

Tests which involve simulating conditions, or the controlled application of irregular, unusual or extreme conditions, on the **Total System**, or any part of the **Total System**, but which do not include commissioning or recommissioning tests or any other tests of a minor nature.

System to Demand Intertrip Scheme

An intertrip scheme which disconnects **Demand** when a **System** fault has arisen to prevent abnormal conditions occurring on the **System**.

System to Generator Operational Intertripping

A **Balancing Service** involving the initiation by a **System to Generator Operational Intertripping Scheme** of automatic tripping of the **User’s circuit breaker(s)**, or **Relevant Transmission Licensee’s circuit breaker(s)** where agreed by **NGET**, the **User** and the **Relevant Transmission Licensee**, resulting in the tripping of **BM Unit(s)** or (where relevant) **Generating Unit(s)** comprised in a **BM Unit** to prevent abnormal system conditions occurring, such as over voltage, overload, **System** instability, etc, after the tripping of other circuit-breakers following power **System** fault(s).

System to Generator Operational Intertripping Scheme

A **System to Generating Unit or System to CCGT Module or System to Power Park Module Intertripping Scheme** forming a condition of connection and specified in Appendix F3 of the relevant Bilateral Agreement, being either a Category 1 Intertripping Scheme, Category 2 Intertripping Scheme, Category 3 Intertripping Scheme or Category 4 Intertripping Scheme.

System Zone

A region of the **National Electricity Transmission System** within a described boundary or the whole of the **National Electricity Transmission System**, as further provided for in OC2.2.4, and the term “Zonal” will be construed accordingly.

Target Frequency

That **Frequency** determined by **NGET**, in its reasonable opinion, as the desired operating **Frequency** of the **Total System**. This will normally be 50.00Hz plus or minus 0.05Hz, except in exceptional circumstances as determined by **NGET**, in its reasonable opinion when this may be 49.90 or 50.10Hz. An example of exceptional circumstances may be difficulties caused in operating the **System** during disputes affecting fuel supplies.

Technical Specification

In relation to **Plant** and/or **Apparatus**,

(a) the relevant **European Specification**; or

(b) if there is no relevant **European Specification**, other relevant standards which are in common use in the European Community.

Test Co-ordinator

A person who co-ordinates **System Tests**.

Test Panel

A panel, whose composition is detailed in **OC12**, which is responsible, inter alia, for considering a proposed **System Test**, and submitting a **Proposal Report** and a **Test Programme**.
Test Programme
A programme submitted by the Test Panel to NGET, the Test Proposer, and each User identified by NGET under OC12.4.2.1, which states the switching sequence and proposed timings of the switching sequence, a list of those staff involved in carrying out the System Test (including those responsible for the site safety) and such other matters as the Test Panel deems appropriate.

Test Proposer
The person who submits a Proposal Notice.

Total Shutdown
The situation existing when all generation has ceased and there is no electricity supply from External Interconnections and, therefore, the Total System has shutdown with the result that it is not possible for the Total System to begin to function again without NGET’s directions relating to a Black Start.

Total System

Trading Point
A commercial and, where so specified in the Grid Code, an operational interface between a User and NGET, which a User has notified to NGET.

Transfer Date
Such date as may be appointed by the Secretary of State by order under section 65 of the Act.

Transmission
Means, when used in conjunction with another term relating to equipment or a site, whether defined or not, that the associated term is to be read as being part of or directly associated with the National Electricity Transmission System, and not of or with the User System.

Transmission Area
Has the meaning set out in the Transmission Licence of a Transmission Licensee.

Transmission DC Converter
Any Transmission Licensee Apparatus (or OTSUA that will become Transmission Licensee Apparatus at the OTSUA Transfer Time) used to convert alternating current electricity to direct current electricity, or vice versa. A Transmission Network DC Converter is a standalone operative configuration at a single site comprising one or more converter bridges, together with one or more converter transformers, converter control equipment, essential protective and switching devices and auxiliaries, if any, used for conversion.

Transmission Entry Capacity
Has the meaning set out in the CUSC.

Transmission Interface Circuit
In NGET’s Transmission Area, a Transmission circuit which connects a System operating at a voltage above 132kV to a System operating at a voltage of 132kV or below
In SHETL’s Transmission Area and SPT’s Transmission Area, a Transmission circuit which connects a System operating at a voltage of 132kV or above to a System operating at a voltage below 132kV.

Transmission Interface Point
means the electrical point of connection between the Offshore Transmission System and an Onshore Transmission System.

Transmission Interface Site
the site at which the Transmission Interface Point is located.

Transmission Licence
A licence granted under Section 6(1)(b) of the Act.
Transmission Licensee

Any Onshore Transmission Licensee or Offshore Transmission Licensee

Transmission Site

In England and Wales, means a site owned (or occupied pursuant to a lease, licence or other agreement) by NGET in which there is a Connection Point. For the avoidance of doubt, a site owned by a User but occupied by NGET as aforesaid, is a Transmission Site.

In Scotland and Offshore, means a site owned (or occupied pursuant to a lease, licence or other agreement) by a Relevant Transmission Licensee in which there is a Connection Point. For the avoidance of doubt, a site owned by a User but occupied by the Relevant Transmission Licensee as aforesaid, is a Transmission Site.

Transmission System

Has the same meaning as the term "licensee's transmission system" in the Transmission Licence of a Transmission Licensee.

Turbine Time Constant

Determined at Registered Capacity, the turbine time constant will be construed in accordance with the principles of the IEEE Committee Report "Dynamic Models for Steam and Hydro Turbines in Power System Studies" published in 1973 which apply to such phrase.

Unbalanced Load

The situation where the Load on each phase is not equal.

Under-excitation Limiter

Shall have the meaning ascribed to that term in IEC 34-16-1:1991 [equivalent to British Standard BS4999 Section 116.1 : 1992].

Under Frequency Relay

An electrical measuring relay intended to operate when its characteristic quantity (Frequency) reaches the relay settings by decrease in Frequency.

Unit Board

A switchboard through which electrical power is supplied to the Auxiliaries of a Generating Unit and which is supplied by a Unit Transformer. It may be interconnected with a Station Board.

Unit Transformer

A transformer directly connected to a Generating Unit’s terminals, and which supplies power to the Auxiliaries of a Generating Unit. Typical voltage ratios are 23/11kV and 15/6.6Kv.

Unit Load Controller Response Time Constant

The time constant, expressed in units of seconds, of the power output increase which occurs in the Secondary Response timescale in response to a step change in System Frequency.

Unresolved Issues

Any relevant Grid Code provisions or Bilateral Agreement requirements identified by NGET with which the relevant User has not demonstrated compliance to NGET’s reasonable satisfaction at the date of issue of the Interim Operational Notification and/or Limited Operational Notification and which are detailed in such Interim Operational Notification and/or Limited Operational Notification.

User

A term utilised in various sections of the Grid Code to refer to the persons using the National Electricity Transmission System, as more particularly identified in each section of the Grid Code concerned. In the Preface and the General Conditions the term means any person to whom the Grid Code applies.
User Data File Structure

The file structure given at DRC 18 which will be specified by NGET which a Generator or DC Converter Station owner must use for the purposes of CP to submit DRC data Schedules and information demonstrating compliance with the Grid Code and, where applicable, with the CUSC Contract(s), unless otherwise agreed by NGET.

User Development

In the PC means either User's Plant and/or Apparatus to be connected to the National Electricity Transmission System, or a Modification relating to a User's Plant and/or Apparatus already connected to the National Electricity Transmission System, or a proposed new connection or Modification to the connection within the User System.

User Self Certification of Compliance

A certificate, in the form attached at CP.A.2.(1) completed by a Generator or DC Converter Station owner to which the Compliance Statement is attached which confirms that such Plant and Apparatus complies with the relevant Grid Code provisions and where appropriate, with the CUSC Contract(s), as identified in the Compliance Statement and, if appropriate, identifies any Unresolved Issues and/or any exceptions to such compliance and details the derogation(s) granted in respect of such exceptions.

User Site

In England and Wales, a site owned (or occupied pursuant to a lease, licence or other agreement) by a User in which there is a Connection Point. For the avoidance of doubt, a site owned by NGET but occupied by a User as aforesaid, is a User Site.

In Scotland and Offshore, a site owned (or occupied pursuant to a lease, licence or other agreement) by a User in which there is a Connection Point. For the avoidance of doubt, a site owned by a Relevant Transmission Licensee but occupied by a User as aforesaid, is a User Site.

User System

Any system owned or operated by a User comprising:-

(a) Generating Units; and/or

(b) Systems consisting (wholly or mainly) of electric lines used for the distribution of electricity from Grid Supply Points or Generating Units or other entry points to the point of delivery to Customers, or other Users;

and Plant and/or Apparatus Apparatus (including prior to the OTSUA Transfer Time, any OTSUA) connecting:-

(c) The system as described above; or

(d) Non-Embedded Customers equipment;

to the National Electricity Transmission System or to the relevant other User System, as the case may be.

The User System includes any Remote Transmission Assets operated by such User or other person and any Plant and/or Apparatus and meters owned or operated by the User or other person in connection with the distribution of electricity but does not include any part of the National Electricity Transmission System.

User System Entry Point

A point at which a Generating Unit, a CCGT Module or a CCGT Unit or a Power Park Module or a DC Converter, as the case may be, which is Embedded connects to the User System.

Water Time Constant

Bears the meaning ascribed to the term "Water inertia time" in IEC308.
Weekly ACS Conditions  
Means that particular combination of weather elements that gives rise to a level of peak Demand within a week, taken to commence on a Monday and end on a Sunday, which has a particular chance of being exceeded as a result of weather variation alone. This particular chance is determined such that the combined probabilities of Demand in all weeks of the year exceeding the annual peak Demand under Annual ACS Conditions is 50%, and in the week of maximum risk the weekly peak Demand under Weekly ACS Conditions is equal to the annual peak Demand under Annual ACS Conditions.

Zonal System Security Requirements  
That generation required, within the boundary circuits defining the System Zone, which when added to the secured transfer capability of the boundary circuits exactly matches the Demand within the System Zone.

A number of the terms listed above are defined in other documents, such as the Balancing and Settlement Code and the Transmission Licence. Appendix 1 sets out the current definitions from the other documents of those terms so used in the Grid Code and defined in other documents for ease of reference, but does not form part of the Grid Code.
GD.2 Construction of References

GD.2.1 In the Grid Code:

(i) a table of contents, a Preface, a Revision section, headings, and the Appendix to this Glossary and Definitions are inserted for convenience only and shall be ignored in construing the Grid Code;

(ii) unless the context otherwise requires, all references to a particular paragraph, sub-paragraph, Appendix or Schedule shall be a reference to that paragraph, sub-paragraph Appendix or Schedule in or to that part of the Grid Code in which the reference is made;

(iii) unless the context otherwise requires, the singular shall include the plural and vice versa, references to any gender shall include all other genders and references to persons shall include any individual, body corporate, corporation, joint venture, trust, unincorporated association, organisation, firm or partnership and any other entity, in each case whether or not having a separate legal personality;

(iv) references to the words "include" or "including" are to be construed without limitation to the generality of the preceding words;

(v) unless there is something in the subject matter or the context which is inconsistent therewith, any reference to an Act of Parliament or any Section of or Schedule to, or other provision of an Act of Parliament shall be construed at the particular time, as including a reference to any modification, extension or re-enactment thereof then in force and to all instruments, orders and regulations then in force and made under or deriving validity from the relevant Act of Parliament;

(vi) where the Glossary and Definitions refers to any word or term which is more particularly defined in a part of the Grid Code, the definition in that part of the Grid Code will prevail (unless otherwise stated) over the definition in the Glossary & Definitions in the event of any inconsistency;

(vii) a cross-reference to another document or part of the Grid Code shall not of itself impose any additional or further or co-existent obligation or confer any additional or further or co-existent right in the part of the text where such cross-reference is contained;

(viii) nothing in the Grid Code is intended to or shall derogate from NGET’s statutory or licence obligations;

(ix) a “holding company” means, in relation to any person, a holding company of such person within the meaning of section 736, 736A and 736B of the Companies Act 1985 as substituted by section 144 of the Companies Act 1989 and, if that latter section is not in force at the Transfer Date, as if such latter section were in force at such date;

(x) a “subsidiary” means, in relation to any person, a subsidiary of such person within the meaning of section 736, 736A and 736B of the Companies Act 1985 as substituted by section 144 of the Companies Act 1989 and, if that latter section is not in force at the Transfer Date, as if such latter section were in force at such date;

(xi) references to time are to London time; and

(xii) (a) Save where (b) below applies, where there is a reference to an item of data being expressed in a whole number of MW, fractions of a MW below 0.5 shall be rounded down to the nearest whole MW and fractions of a MW of 0.5 and above shall be rounded up to the nearest whole MW;

(b) In the case of the definition of Registered Capacity, fractions of a MW below 0.05 shall be rounded down to one decimal place and fractions of a MW of 0.05 and above shall be rounded up to one decimal place.

< END OF GLOSSARY & DEFINITIONS >
# PLANNING CODE (PC)

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PC.1 INTRODUCTION

PC.1.1 The Planning Code ("PC") specifies the technical and design criteria and procedures to be applied by NGET in the planning and development of the National Electricity Transmission System and to be taken into account by Users in the planning and development of their own Systems. In the case of OTSUA, the PC also specifies the technical and design criteria and procedures to be applied by the User in the planning and development of the OTSUA. It details information to be supplied by Users to NGET, and certain information to be supplied by NGET to Users. In Scotland and Offshore, NGET has obligations under the STC to inform Relevant Transmission Licensees of data required for the planning of the National Electricity Transmission System. In respect of PC data, NGET may pass on User data to a Relevant Transmission Licensee, as detailed in PC.3.4 and PC.3.5.

PC.1.1A Provisions of the PC which apply in relation to OTSDUW and OTSUA shall apply up to the OTSUA Transfer Time, whereupon such provisions shall (without prejudice to any prior non-compliance) cease to apply, without prejudice to the continuing application of provisions of the PC applying in relation to the relevant Offshore Transmission System and/or Connection Site.

PC.1.1B As used in the PC:

(a) National Electricity Transmission System excludes OTSDUW Plant and Apparatus (prior to the OTSUA Transfer Time) unless the context otherwise requires;

(b) and User Development includes OTSDUW unless the context otherwise requires.

PC.1.2 The Users referred to above are defined, for the purpose of the PC, in PC.3.1.

PC.1.3 Development of the National Electricity Transmission System, involving its reinforcement or extension, will arise for a number of reasons including, but not limited to:

(a) a development on a User System already connected to the National Electricity Transmission System;

(b) the introduction of a new Connection Site or the Modification of an existing Connection Site between a User System and the National Electricity Transmission System;

(c) the cumulative effect of a number of such developments referred to in (a) and (b) by one or more Users.

PC.1.4 Accordingly, the reinforcement or extension of the National Electricity Transmission System may involve work:

(a) at a substation at a Connection Site where User’s Plant and/or Apparatus is connected to the National Electricity Transmission System (or in the case of OTSDUW, at a substation at an Interface Point);

(b) on transmission lines or other facilities which join that Connection Site (or in the case of OTSDUW, Interface Point) to the remainder of the National Electricity Transmission System;

(c) on transmission lines or other facilities at or between points remote from that Connection Site (or in the case of OTSDUW, Interface Point).

PC.1.5 The time required for the planning and development of the National Electricity Transmission System will depend on the type and extent of the necessary reinforcement and/or extension work, the need or otherwise for statutory planning consent, the associated possibility of the need for a public inquiry and the degree of complexity in undertaking the new work while maintaining satisfactory security and quality of supply on the existing National Electricity Transmission System.
PC.2 OBJECTIVE

The objectives of the PC are:

(a) to promote NGET/User interaction in respect of any proposed development on the User System which may impact on the performance of the National Electricity Transmission System or the direct connection with the National Electricity Transmission System;

(b) to provide for the supply of information to NGET from Users in order that planning and development of the National Electricity Transmission System can be undertaken in accordance with the relevant Licence Standards, to facilitate existing and proposed connections, and also to provide for the supply of certain information from NGET to Users in relation to short circuit current contributions and OTSUA; and

(c) to specify the Licence Standards which will be used in the planning and development of the National Electricity Transmission System; and

(d) to provide for the supply of information required by NGET from Users in respect of the following to enable NGET to carry out its duties under the Act and the Transmission Licence:

(i) Mothballed Generating Units; and

(ii) capability of gas-fired Generating Units to run using alternative fuels.

NGET will use the information provided under PC.2.1(d) in providing reports to the Authority and the Secretary of State and, where directed by the Authority or the Secretary of Sate to do so, NGET may publish the information. Where it is known by NGET that such information is intended for wider publication the information provided under PC.2.1(d) shall be aggregated such that individual data items should not be identifiable.

(e) in the case of OTSUA:

(i) to specify the minimum technical and design criteria and procedures to be applied by Users in the planning and development of OTSUA; and thereby

(ii) to ensure that the OTSUA can from the OTSUA Transfer Time be operated as part of the National Electricity Transmission System; and

(iii) to provide for the arrangements and supply of information and data between NGET and a User to ensure that the User is able to undertake OTSUW; and

(iv) to promote NGET/User interaction and co-ordination in respect of any proposed development on the National Electricity Transmission System or the OTSUA, which may impact on the OTSUA or (as the case may be) the National Electricity Transmission System.

PC.3 SCOPE

The PC applies to NGET and to Users, which in the PC means:

(a) Generators;

(b) Generators undertaking OTSUW;

(c) Network Operators;

(d) Non-Embedded Customers; and

(e) DC Converter Station owners.

The above categories of User will become bound by the PC prior to them generating, operating, or consuming or importing/exporting, as the case may be, and references to the various categories (or to the general category) of User should, therefore, be taken as referring to them in that prospective role as well as to Users actually connected.
In the case of Embedded Power Stations and Embedded DC Converter Stations, unless provided otherwise, the following provisions apply with regard to the provision of data under this PC:

(a) each Generator shall provide the data direct to NGET in respect of (i) Embedded Large Power Stations, (ii) Embedded Medium Power Stations subject to a Bilateral Agreement and (iii) Embedded Small Power Stations which form part of a Cascade Hydro Scheme;

(b) each DC Converter owner shall provide the data direct to NGET in respect of Embedded DC Converter Stations subject to a Bilateral Agreement;

(c) each Network Operator shall provide the data to NGET in respect of each Embedded Medium Power Station not subject to a Bilateral Agreement or Embedded DC Converter Station not subject to a Bilateral Agreement connected, or proposed to be connected within such Network Operator’s System;

(d) although data is not normally required specifically on Embedded Small Power Stations or on Embedded installations of direct current converters which do not form a DC Converter Station under this PC, each Network Operator in whose System they are Embedded should provide the data (contained in the Appendix) to NGET in respect of Embedded Small Power Stations or Embedded installations of direct current converters which do not form a DC Converter Station if:

(i) it falls to be supplied pursuant to the application for a CUSC Contract or in the Statement of Readiness to be supplied in connection with a Bilateral Agreement and/or Construction Agreement, by the Network Operator; or

(ii) it is specifically requested by NGET in the circumstances provided for under this PC.

Certain data does not normally need to be provided in respect of certain Embedded Power Stations or Embedded DC Converter Stations, as provided in PC.A.1.12.

In summary, Network Operators are required to supply the following data in respect of Embedded Medium Power Stations not subject to a Bilateral Agreement or Embedded DC Converter Stations not subject to a Bilateral Agreement connected, or is proposed to be connected, within such Network Operator’s System:

PC.A.2.1.1
PC.A.2.2.2
PC.A.2.5.5.2
PC.A.2.5.5.7
PC.A.2.5.6
PC.A.3.1.5
PC.A.3.2.2
PC.A.3.3.1
PC.A.3.4.1
PC.A.3.4.2
PC.A.5.2.2
PC.A.5.3.2
PC.A.5.4
PC.A.5.5.1
PC.A.5.6
For the avoidance of doubt Network Operators are required to supply the above data in respect of Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement which are located Offshore and which are connected or proposed to be connected within such Network Operator’s System. This is because Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement are treated as Onshore Generators or Onshore DC Converter Station owners connected to an Onshore User System Entry Point.

PC.3.4 NGET may provide to the Relevant Transmission Licensees any data which has been submitted to NGET by any Users pursuant to the following paragraphs of the PC. For the avoidance of doubt, NGET will not provide to the Relevant Transmission Licensees, the types of data specified in Appendix D. The Relevant Transmission Licensees' use of such data is detailed in the STC.

PC.A.2.2
PC.A.2.5
PC.A.3.1
PC.A.3.2.1
PC.A.3.2.2
PC.A.3.3
PC.A.3.4
PC.A.4
PC.A.5.1
PC.A.5.2
PC.A.5.3.1
PC.A.5.3.2
PC.A.5.4.1
PC.A.5.4.2
PC.A.5.4.3.1
PC.A.5.4.3.2
PC.A.5.4.3.3
PC.A.5.4.3.4
PC.A.7

(and in addition in respect of the data submitted in respect of the OTSUA)

PC.A.2.2
PC.A.2.3
PC.A.2.4
PC.A.2.5
PC.A.3.2.2
PC.A.3.3.1(d)
PC.A.4
PC.A.5.4.3.1
PC.A.5.4.3.2
PC.A.6.2
In addition to the provisions of PC.3.4 NGET may provide to the Relevant Transmission Licensees any data which has been submitted to NGET by any Users in respect of Relevant Units pursuant to the following paragraphs of the PC.

In the case of Offshore Embedded Power Stations connected to an Offshore User System which directly connects to an Offshore Transmission System, any additional data requirements in respect of such Offshore Embedded Power Stations may be specified in the relevant Bilateral Agreement with the Network Operator or in any Bilateral Agreement between NGET and such Offshore Embedded Power Station.

In the case of a Generator undertaking OTSDUW connecting to an Onshore Network Operator’s System, any additional requirements in respect of such OTSDUW Plant and Apparatus will be specified in the relevant Bilateral Agreement with the Generator. For the avoidance of doubt, requirements applicable to Generators undertaking OTSDUW and connecting to a Network Operator’s User System, shall be consistent with those applicable requirements of Generators undertaking OTSDUW and connecting to a Transmission Interface Point.

PLANNING PROCEDURES

Pursuant to Condition C11 of NGET’s Transmission Licence, the means by which Users and proposed Users of the National Electricity Transmission System are able to assess opportunities for connecting to and using, the National Electricity Transmission System comprise two distinct parts, namely:

(a) a statement, prepared by NGET under its Transmission Licence, showing for each of the seven succeeding Financial Years, the opportunities available for connecting to and using the National Electricity Transmission System and indicating those parts of the National Electricity Transmission System most suited to new connections and transport of further quantities of electricity (the “Seven Year Statement”); and

(b) an offer, in accordance with its Transmission Licence, by NGET to enter into a CUSC Contract. A Bilateral Agreement is to be entered into for every Connection Site (and for certain Embedded Power Stations and Embedded DC Converter Stations) within the first two of the following categories and the existing Bilateral Agreement may be required to be varied in the case of the third category:

(i) existing Connection Sites (and for certain Embedded Power Stations) as at the Transfer Date;
(ii) new Connection Sites (and for certain Embedded Power Stations and for Embedded DC Converter Stations) with effect from the Transfer Date;

(iii) a Modification at a Connection Site (or in relation to the connection of certain Embedded Power Stations and for Embedded DC Converter Stations whether or not the subject of a Bilateral Agreement) (whether such Connection Site or connection exists on the Transfer Date or is new thereafter) with effect from the Transfer Date.

In this PC, unless the context otherwise requires, “connection” means any of these 3 categories.

PC.4.2 Introduction to Data

User Data

PC.4.2.1 Under the PC, two types of data to be supplied by Users are called for:

(a) Standard Planning Data; and

(b) Detailed Planning Data,

as more particularly provided in PC.A.1.4.

PC.4.2.2 The PC recognises that these two types of data, namely Standard Planning Data and Detailed Planning Data, are considered at three different levels:

(a) Preliminary Project Planning Data;

(b) Committed Project Planning Data; and

(c) Connected Planning Data,

as more particularly provided in PC.5

PC.4.2.3 Connected Planning Data is itself divided into:

(a) Forecast Data;

(b) Registered Data; and

(c) Estimated Registered Data,

as more particularly provided in PC.5.5

PC.4.2.4 Clearly, an existing User proposing a new Connection Site (or Embedded Power Station or Embedded DC Converter Station in the circumstances outlined in PC.4.1) will need to supply data both in an application for a Bilateral Agreement and under the PC in relation to that proposed new Connection Site (or Embedded Power Station or Embedded DC Converter Station in the circumstances outlined in PC.4.1) and that will be treated as Preliminary Project Planning Data or Committed Project Planning Data (as the case may be), but the data it supplies under the PC relating to its existing Connection Sites will be treated as Connected Planning Data.

Network Data

PC.4.2.5 In addition, there is Network Data supplied by NGET in relation to short circuit current contributions and in relation to OTSUA.
PC.4.3 Data Provision

PC.4.3.1 Seven Year Statement

To enable the Seven Year Statement to be prepared, each User is required to submit to NGET (subject to the provisions relating to Embedded Power Stations and Embedded DC Converter Stations in PC.3.2) both the Standard Planning Data and the Detailed Planning Data as listed in parts 1 and 2 of the Appendix. This data should be submitted in calendar week 24 of each year (although Network Operators may delay the submission of data (other than that to be submitted pursuant to PC.3.2(c) and PC.3.2(d)) until calendar week 28) and should cover each of the seven succeeding Financial Years (and in certain instances, the current year). Where, from the date of one submission to another, there is no change in the data (or in some of the data) to be submitted, instead of re-submitting the data, a User may submit a written statement that there has been no change from the data (or in some of the data) submitted the previous time. In addition, NGET will also use the Transmission Entry Capacity and Connection Entry Capacity data from the CUSC Contract, and any data submitted by Network Operators in relation to an Embedded Medium Power Station not subject to a Bilateral Agreement or Embedded DC Converter Station not subject to a Bilateral Agreement, in the preparation of the Seven Year Statement and to that extent the data will not be treated as confidential.

PC.4.3.2 Network Data

To enable Users to model the National Electricity Transmission System in relation to short circuit current contributions, NGET is required to submit to Users the Network Data as listed in Part 3 of the Appendix. The data will be submitted in week 42 of each year and will cover that Financial Year.

PC.4.3.3 To enable Users to model the National Electricity Transmission System in relation to OTSU A, NGET is required to submit to Users the Network Data as listed in Part 3 of Appendix A and Appendix F. NGET shall provide the Network Data with the offer of a CUSC Contract in the case of the data in PC F2.1 and otherwise in accordance with the OTSDUW Development and Data Timetable.

PC.4.4 Offer of Terms for Connection

PC.4.4.1 CUSC Contract – Data Requirements/Offer Timing

The completed application form for a CUSC Contract to be submitted by a User when making an application for a CUSC Contract will include:

(a) a description of the Plant and/or Apparatus (excluding OTSDUW Plant and Apparatus) to be connected to the National Electricity Transmission System or of the Modification relating to the User’s Plant and/or Apparatus (and prior to the OTSU A Transfer Time, any OTSU A) already connected to the National Electricity Transmission System or, as the case may be, of the proposed new connection or Modification to the connection within the User System of the User, each of which shall be termed a "User Development" in the PC;

(b) the relevant Standard Planning Data as listed in Part 1 of the Appendix (except in respect of any OTSU A); and

(c) the desired Completion Date of the proposed User Development.

(d) the desired Connection Entry Capacity and Transmission Entry Capacity.

The completed application form for a CUSC Contract will be sent to NGET as more particularly provided in the application form.
PC.4.4.2 Any offer of a CUSC Contract will provide that it must be accepted by the applicant User within the period stated in the offer, after which the offer automatically lapses. Except as provided in the CUSC Contract, acceptance of the offer renders the National Electricity Transmission System works relating to that User Development, reflected in the offer, committed and binds both parties to the terms of the offer. The User shall then provide the Detailed Planning Data as listed in Part 2 of the Appendix (and in the case of OTSUA the Standard Planning Data as listed in Part 1 of Appendix A within the timeline provided in PC.A.1.4). In respect of DPD I this shall generally be provided within 28 days (or such shorter period as NGET may determine, or such longer period as NGET may agree, in any particular case) of acceptance of the offer and in respect of DPD II this shall generally be provided at least two years (or such longer period as NGET may determine, or such shorter period as NGET may agree, in any particular case or in the case of OTSUA such shorter period as NGET shall require) prior to the Completion Date of the User Development.

PC.4.4.3 Embedded Development Agreement - Data Requirements

The Network Operator shall submit the following data in relation to an Embedded Medium Power Station not subject to, or proposed to be subject to, a Bilateral Agreement or Embedded DC Converter Station not subject to, or proposed to be subject to, a Bilateral Agreement as soon as reasonably practicable after receipt of an application from an Embedded Person to connect to its System:

(a) details of the proposed new connection or variation (having a similar effect on the Network Operator’s System as a Modification would have on the National Electricity Transmission System) to the connection within the Network Operator’s System, each of which shall be termed an “Embedded Development” in the PC (where a User Development has an impact on the Network Operator’s System details shall be supplied in accordance with PC.4.4 and PC.4.5);

(b) the relevant Standard Planning Data as listed in Part 1 of the Appendix;

(c) the proposed completion date (having a similar meaning in relation to the Network Operator’s System as Completion Date would have in relation to the National Electricity Transmission System) of the Embedded Development; and

(d) upon the request of NGET, the relevant Detailed Planning Data as listed in Part 2 of the Appendix.

PC.4.4.4 The Network Operator shall provide the Detailed Planning Data as listed in Part 2 of the Appendix. In respect of DPD I this shall generally be provided within 28 days (or such shorter period as NGET may determine, or such longer period as NGET may agree, in any particular case) of entry into the Embedded Development Agreement and in respect to DPD II this shall generally be provided at least two years (or such longer period as NGET may determine, or such shorter period as NGET may agree, in any particular case) prior to the Completion Date of the Embedded Development.

PC.4.5 Complex Connections

PC.4.5.1 The magnitude and complexity of any National Electricity Transmission System extension or reinforcement will vary according to the nature, location and timing of the proposed User Development which is the subject of the application and it may, in the event, be necessary for NGET to carry out additional more extensive system studies to evaluate more fully the impact of the proposed User Development on the National Electricity Transmission System. Where NGET judges that such additional more detailed studies are necessary the offer may indicate the areas that require more detailed analysis and before such additional studies are required, the User shall indicate whether it wishes NGET to undertake the work necessary to proceed to make a revised offer within the 3 month period normally allowed or, where relevant, the timescale consented to by the Authority.

PC.4.5.2 To enable NGET to carry out any of the above mentioned necessary detailed system studies, the User may, at the request of NGET, be required to provide some or all of the Detailed Planning Data listed in part 2 of the Appendix in advance of the normal timescale referred in PC.4.4.2 provided that NGET can reasonably demonstrate that it is relevant and necessary.
PC.4.5.3 To enable NGET to carry out any necessary detailed system studies, the relevant Network Operator may, at the request of NGET, be required to provide some or all of the Detailed Planning Data listed in Part 2 of the Appendix in advance of the normal timescale referred in PC.4.4.4 provided that NGET can reasonably demonstrate that it is relevant and necessary.

PC.5 PLANNING DATA

PC.5.1 As far as the PC is concerned, there are three relevant levels of data in relation to Users. These levels, which relate to levels of confidentiality, commitment and validation, are described in the following paragraphs.

Preliminary Project Planning Data

PC.5.2 At the time the User applies for a CUSC Contract but before an offer is made and accepted by the applicant User, the data relating to the proposed User Development will be considered as Preliminary Project Planning Data. Data relating to an Embedded Development provided by a Network Operator in accordance with PC.4.4.3, and PC.4.4.4 if requested, will be considered as Preliminary Project Planning Data. All such data will be treated as confidential within the scope of the provisions relating to confidentiality in the CUSC.

PC.5.3 Preliminary Project Planning Data will normally only contain the Standard Planning Data unless the Detailed Planning Data is required in advance of the normal timescale to enable NGET to carry out additional detailed system studies as described in PC.4.5.

Committed Project Planning Data

PC.5.4 Once the offer for a CUSC Contract is accepted, the data relating to the User Development already submitted as Preliminary Project Planning Data, and subsequent data required by NGET under this PC, will become Committed Project Planning Data. Once an Embedded Person has entered into an Embedded Development Agreement, as notified to NGET by the Network Operator, the data relating to the Embedded Development already submitted as Preliminary Project Planning Data, and subsequent data required by NGET under the PC, will become Committed Project Planning Data. Such data, together with Connection Entry Capacity and Transmission Entry Capacity data from the CUSC Contract and other data held by NGET relating to the National Electricity Transmission System will form the background against which new applications by any User will be considered and against which planning of the National Electricity Transmission System will be undertaken. Accordingly, Committed Project Planning Data, Connection Entry Capacity and Transmission Entry Capacity data will not be treated as confidential to the extent that NGET:

(a) is obliged to use it in the preparation of the Seven Year Statement and in any further information given pursuant to the Seven Year Statement;

(b) is obliged to use it when considering and/or advising on applications (or possible applications) of other Users (including making use of it by giving data from it, both orally and in writing, to other Users making an application (or considering or discussing a possible application) which is, in NGET's view, relevant to that other application or possible application);

(c) is obliged to use it for operational planning purposes;

(d) is obliged under the terms of an Interconnection Agreement to pass it on as part of system information on the Total System;

(e) is obliged to disclose it under the STC;

(f) is obliged to use and disclose it in the preparation of the Offshore Development Information Statement;

(g) is obliged to use it in order to carry out its EMR Functions or is obliged to disclose it under an EMR Document.
To reflect different types of data, Preliminary Project Planning Data and Committed Project Planning Data are themselves divided into:

(a) those items of Standard Planning Data and Detailed Planning Data which will always be forecast, known as Forecast Data; and

(b) those items of Standard Planning Data and Detailed Planning Data which relate to Plant and/or Apparatus which upon connection will become Registered Data, but which prior to connection, for the seven succeeding Financial Years, will be an estimate of what is expected, known as Estimated Registered Data.

Connected Planning Data

PC.5.5

The PC requires that, at the time that a Statement of Readiness is submitted under the Bilateral Agreement and/or Construction Agreement, any estimated values assumed for planning purposes are confirmed or, where practical, replaced by validated actual values and by updated estimates for the future and by updated forecasts for forecast data items such as Demand. In the case of an Embedded Development the relevant Network Operator will update any estimated values assumed for planning purposes with validated actual values as soon as reasonably practicable after energisation. This data is then termed Connected Planning Data.

To reflect the three types of data referred to above, Connected Planning Data is itself divided into:

(a) those items of Standard Planning Data and Detailed Planning Data which will always be forecast data, known as Forecast Data; and

(b) those items of Standard Planning Data and Detailed Planning Data which upon connection become fixed (subject to any subsequent changes), known as Registered Data; and

(c) those items of Standard Planning Data and Detailed Planning Data which for the purposes of the Plant and/or Apparatus concerned as at the date of submission are Registered Data but which for the seven succeeding Financial Years will be an estimate of what is expected, known as Estimated Registered Data,

as more particularly provided in the Appendix.

PC.5.6

Connected Planning Data, together with Connection Entry Capacity and Transmission Entry Capacity data from the CUSC Contract, and other data held by NGET relating to the National Electricity Transmission System, will form the background against which new applications by any User will be considered and against which planning of the National Electricity Transmission System will be undertaken. Accordingly, Connected Planning Data, Connection Entry Capacity and Transmission Entry Capacity data will not be treated as confidential to the extent that NGET:

(a) is obliged to use it in the preparation of the Seven Year Statement and in any further information given pursuant to the Seven Year Statement;

(b) is obliged to use it when considering and/or advising on applications (or possible applications) of other Users (including making use of it by giving data from it, both orally and in writing, to other Users making an application (or considering or discussing a possible application) which is, in NGET’s view, relevant to that other application or possible application);

(c) is obliged to use it for operational planning purposes;

(d) is obliged under the terms of an Interconnection Agreement to pass it on as part of system information on the Total System.

(e) is obliged to disclose it under the STC;

(f) is obliged to use it in order to carry out its EMR Functions or is obliged to disclose it under an EMR Document.
Committed Project Planning Data and Connected Planning Data will each contain both Standard Planning Data and Detailed Planning Data.
PC.6 PLANNING STANDARDS

PC.6.1 **NGET** shall apply the Licence Standards relevant to planning and development, in the planning and development of its Transmission System. **NGET** shall procure that each Relevant Transmission Licensee shall apply the Licence Standards relevant to planning and development, in the planning and development of the Transmission System of each Relevant Transmission Licensee and that a User shall apply the Licence Standards relevant to planning and development, in the planning and development of the OTSUA.

PC.6.2 In relation to Scotland, Appendix C lists the technical and design criteria applied in the planning and development of each Relevant Transmission Licensee's Transmission System. The criteria are subject to review in accordance with each Relevant Transmission Licensee’s Transmission Licence conditions. Copies of these documents are available from **NGET** on request. **NGET** will charge an amount sufficient to recover its reasonable costs incurred in providing this service.

PC.6.3 In relation to Offshore, Appendix E lists the technical and design criteria applied in the planning and development of each Offshore Transmission System. The criteria are subject to review in accordance with each Offshore Transmission Licensee’s Transmission Licence conditions. Copies of these documents are available from **NGET** on request. **NGET** will charge an amount sufficient to recover its reasonable costs incurred in providing this service.

PC.6.4 In planning and developing the OTSUA, the **User** shall comply with (and shall ensure that (as at the OTSUA Transfer Time) the OTSUA comply with):

(a) the Licence Standards; and

(b) the technical and design criteria in Appendix E.

PC.6.5 In addition the **User** shall, in the planning and development of the OTSUA, to the extent it is reasonable and practicable to do so, take into account the reasonable requests of **NGET** (in the context of its obligation to develop an efficient, co-ordinated and economical system) relating to the planning and development of the National Electricity Transmission System.

PC.6.6 In planning and developing the OTSUA the **User** shall take into account the Network Data provided to it by **NGET** under Part 3 of Appendix A and Appendix F, and act on the basis that the Plant and Apparatus of other Users complies with:

(a) the minimum technical design and operational criteria and performance requirements set out in CC.6.1, CC.6.2, CC.6.3 and CC.6.4; or

(b) such other criteria or requirements as **NGET** may from time to time notify the **User** are applicable to specified Plant and Apparatus pursuant to PC.6.7.

PC.6.7 Where the OTSUA are likely to be materially affected by the design or operation of another User's Plant and Apparatus and **NGET**:

(a) becomes aware that such other User has or is likely to apply for a derogation under the Grid Code;

(b) is itself applying for a derogation under the Grid Code in relation to the Connection Site on which such other User’s Plant and Apparatus is located or to which it otherwise relates; or

(c) is otherwise notified by such other User that specified Plant or Apparatus is normally capable of operating at levels better than those set out in CC.6.1, CC.6.2, CC.6.3 and CC.6.4,

**NGET** shall notify the **User**.
PLANNING LIAISON

PC.7.1 This PC.7 applies to NGET and Users, which in PC.7 means

(a) Network Operators
(b) Non-Embedded Customers

PC.7.2 As described in PC.2.1 (b) an objective of the PC is to provide for the supply of information to NGET by Users in order that planning and development of the National Electricity Transmission System can be undertaken in accordance with the relevant Licence Standards.

PC.7.3 Grid Code amendment B/07 (“Amendment B/07”) implemented changes to the Grid Code which included amendments to the datasets provided by both NGET and Users to inform the planning and development of the National Electricity Transmission System. The Authority has determined that these changes are to have a phased implementation. Consequently the provisions of Appendix A to the PC include specific years (ranging from 2009 to 2011) with effect from which certain of the specific additional obligations brought about by Amendment B/07 on NGET and Users are to take effect. Where specific provisions of paragraphs PC.A.4.1.4, PC.A.4.2.2 and PC.A.4.3.1 make reference to a year, then the obligation on NGET and the Users shall be required to be met by the relevant calendar week (as specified within such provision) in such year.

In addition to the phased implementation of aspects of Amendment B/07, Users must discuss and agree with NGET by no later than 31 March 2009 a more detailed implementation programme to facilitate the implementation of Grid Code amendment B/07.

It shall also be noted by NGET and Users that the dates set out in PC.A.4 are intended to be minimum requirements and are not intended to restrict a User and NGET from the earlier fulfilment of the new requirements prior to the specified years. Where NGET and a User wish to follow the new requirements from earlier dates than those specified, this will be set out in the more detailed implementation programme agreed between NGET and the User.

The following provisions of PC.7 shall only apply with effect from 1 January 2011.

PC.7.4 Following the submission of data by a User in or after week 24 of each year NGET will provide information to Users by calendar week 6 of the following year regarding the results of any relevant assessment that has been made by NGET based upon such data submissions to verify whether Connection Points are compliant with the relevant Licence Standards.

PC.7.5 Where the result of any assessment identifies possible future non-compliance with the relevant Licence Standards NGET shall notify the relevant User(s) of this fact as soon as reasonably practicable and shall agree with Users any opportunity to resubmit data to allow for a reassessment in accordance with PC.7.6.

PC.7.6 Following any notification by NGET to a User pursuant to PC.7.5 and following any further discussions held between the User and NGET:

(i) NGET and the User may agree revisions to the Access Periods for relevant Transmission Interface Circuits, such revisions shall not however permit an Access Period to be less than 4 continuous weeks in duration or to occur other than between calendar weeks 10 and 43 (inclusive); and/or,

(ii) The User shall as soon as reasonably practicable

(a) submit further relevant data to NGET that is to NGET’s reasonable satisfaction; and/or,

(b) modify data previously submitted pursuant to this PC, such modified data to be to NGET’s reasonable satisfaction; and/or

(c) notify NGET that it is the intention of the User to leave the data as originally submitted to NGET to stand as its submission.

PC.7.7 Where an Access Period is amended pursuant to PC.7.6 (i) NGET shall notify The Authority that it has been necessary to do so.
PC.7.8 When it is agreed that any resubmission of data is unlikely to confirm future compliance with the relevant Licence Standards the Modification process in the CUSC may apply.

PC.7.9 A User may at any time, in writing, request further specified National Electricity Transmission System network data in order to provide NGET with viable User network data (as required under this PC). Upon receipt of such request NGET shall consider, and where appropriate provide such National Electricity Transmission System network data to the User as soon as reasonably practicable following the request.

PC.8 OTSDUW PLANNING LIAISON

PC.8.1 This PC.8 applies to NGET and Users, which in PC.8 means Users undertaking OTSDUW.

PC.8.2 As described in PC.2.1 (e) an objective of the PC is to provide for the supply of information between NGET and a User undertaking OTSDUW in order that planning and development of the National Electricity Transmission System can beco-ordinated.

PC.8.3 Where the OTSUA also require works to be undertaken by NGET and/or any Relevant Transmission Licensee on its Transmission System NGET and the User shall throughout the construction and commissioning of such works:

(a) co-operate and assist each other in the development of co-ordinated construction programmes or any other planning or, in the case of NGET, analysis it undertakes in respect of the works; and

(b) provide to each other all information relating to its own works (and in the case of NGET the works on other Transmission Systems) reasonably necessary to assist each other in the performance of that other’s part of the works, and shall use all reasonable endeavours to co-ordinate and integrate their respective part of the works; and

the User shall plan and develop the OTSUA, taking into account to the extent that it is reasonable and practicable to do so the reasonable requests of NGET relating to the planning and development of the National Electricity Transmission System.

PC.8.4 Where NGET becomes aware that changes made to the investment plans of NGET and any Relevant Transmission Licensee may have a material effect on the OTSUA, NGET shall notify the User and provide the User with the necessary information about the relevant Transmission Systems sufficient for the User to assess the impact on the OTSUA.
APPENDIX A - PLANNING DATA REQUIREMENTS

PC.A.1 INTRODUCTION

The Appendix specifies data requirements to be submitted to NGET by Users, and in certain circumstances to Users by NGET.

PC.A.1.2 Submissions by Users

(a) Planning data submissions by Users shall be:

(i) with respect to each of the seven succeeding Financial Years (other than in the case of Registered Data which will reflect the current position and data relating to Demand forecasts which relates also to the current year);

(ii) provided by Users in connection with a CUSC Contract (PC.4.1, PC.4.4 and PC.4.5 refer);

(iii) provided by Users on a routine annual basis in calendar week 24 of each year to maintain an up-to-date data bank (although Network Operators may delay the submission of data (other than that to be submitted pursuant to PC.3.2(c) and PC.3.2(d)) until calendar week 28). Where from the date of one annual submission to another there is no change in the data (or in some of the data) to be submitted, instead of re-submitting the data, a User may submit a written statement that there has been no change from the data (or some of the data) submitted the previous time; and

(iv) provided by Network Operators in connection with Embedded Development (PC.4.4 refers).

(b) Where there is any change (or anticipated change) in Committed Project Planning Data or a significant change in Connected Planning Data in the category of Forecast Data or any change (or anticipated change) in Connected Planning Data in the categories of Registered Data or Estimated Registered Data supplied to NGET under the PC, notwithstanding that the change may subsequently be notified to NGET under the PC as part of the routine annual update of data (or that the change may be a Modification under the CUSC), the User shall, subject to PC.A.3.2.3 and PC.A.3.2.4, notify NGET in writing without delay.

(c) The notification of the change will be in the form required under this PC in relation to the supply of that data and will also contain the following information:

(i) the time and date at which the change became, or is expected to become, effective;

(ii) if the change is only temporary, an estimate of the time and date at which the data will revert to the previous registered form.

(d) The routine annual update of data, referred to in (a)(iii) above, need not be submitted in respect of Small Power Stations or Embedded installations of direct current converters which do not form a DC Converter Station (except as provided in PC.3.2.(c)), or unless specifically requested by NGET, or unless otherwise specifically provided.

PC.A.1.3 Submissions by NGET

Network Data release by NGET shall be:

(a) with respect to the current Financial Year;

(b) provided by NGET on a routine annual basis in calendar week 42 of each year. Where from the date of one annual submission to another there is no change in the data (or in some of the data) to be released, instead of repeating the data, NGET may release a written statement that there has been no change from the data (or some of the data) released the previous time.

The three parts of the Appendix

PC.A.1.4 The data requirements listed in this Appendix are subdivided into the following four parts:
(a) **Standard Planning Data**

This data (as listed in Part 1 of the Appendix) is first to be provided by a **User** at the time of an application for a **CUSC Contract** or in accordance with PC.4.4.3. It comprises data which is expected normally to be sufficient for **NGET** to investigate the impact on the **National Electricity Transmission System** of any **User Development** or **Embedded Development** associated with an application by the **User** for a **CUSC Contract**. **Users** should note that the term **Standard Planning Data** also includes the information referred to in PC.4.4.1.(a) and PC.4.4.3.(a). In the case of **OTSUA**, this data is first to be provided by a **User** in accordance with the time line in Appendix F.

(b) **Detailed Planning Data**

This data (as listed in Part 2 of the Appendix) includes both **DPD I** and **DPD II** and is to be provided in accordance with PC.4.4.2 and PC.4.4.4. It comprises additional, more detailed, data not normally expected to be required by **NGET** to investigate the impact on the **National Electricity Transmission System** of any **User Development** associated with an application by the **User** for a **CUSC Contract** or **Embedded Development Agreement**. **Users** and **Network Operators** in respect of **Embedded Developments** should note that the term **Detailed Planning Data** also includes **Operation Diagrams** and **Site Common Drawings** produced in accordance with the **CC**.

The **User** may, however, be required by **NGET** to provide the **Detailed Planning Data** in advance of the normal timescale before **NGET** can make an offer for a **CUSC Contract**, as explained in PC.4.5.

(c) **Network Data**

The data requirements for **NGET** in this Appendix are in Part 3.

(d) **Offshore Transmission System (OTSDUW) Data**

**Generators** who are undertaking **OTSDUW** are required to submit data in accordance with Appendix A as summarised in Schedule 18 of the **Data Registration Code**.

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**Forecast Data, Registered Data and Estimated Registered Data**

**PC.A.1.5**

As explained in PC.5.4 and PC.5.5, **Planning Data** is divided into:

(i) those items of **Standard Planning Data** and **Detailed Planning Data** known as **Forecast Data**; and

(ii) those items of **Standard Planning Data** and **Detailed Planning Data** known as **Registered Data**; and

(iii) those items of **Standard Planning Data** and **Detailed Planning Data** known as **Estimated Registered Data**.

**PC.A.1.6**

The following paragraphs in this Appendix relate to **Forecast Data**:

3.2.2(b), (h), (i) and (j)

4.2.1

4.3.1

4.3.2

4.3.3

4.3.4

4.3.5

4.5

4.7.1

5.2.1
5.2.2
5.6.1

PC.A.1.7 The following paragraphs in this Appendix relate to **Registered Data** and **Estimated Registered Data**:

- 2.2.1
- 2.2.4
- 2.2.5
- 2.2.6
- 2.3.1
- 2.4.1
- 2.4.2
- 3.2.2(a), (c), (d), (e), (f), (g), (i)(part) and (j)
- 3.4.1
- 3.4.2
- 4.2.3
- 4.5(a)(i), (a)(iii), (b)(i) and (b)(iii)
- 4.6
- 5.3.2
- 5.4
- 5.4.2
- 5.4.3
- 5.5
- 5.6.3
- 6.2
- 6.3

PC.A.1.8 The data supplied under PC.A.3.3.1, although in the nature of **Registered Data**, is only supplied either upon application for a **CUSC Contract**, or in accordance with PC.4.4.3, and therefore does not fall to be **Registered Data**, but is **Estimated Registered Data**.

PC.A.1.9 **Forecast Data** must contain the **User's** best forecast of the data being forecast, acting as a reasonable and prudent **User** in all the circumstances.

PC.A.1.10 **Registered Data** must contain validated actual values, parameters or other information (as the case may be) which replace the estimated values, parameters or other information (as the case may be) which were given in relation to those data items when they were **Preliminary Project Planning Data** and **Committed Project Planning Data**, or in the case of changes, which replace earlier actual values, parameters or other information (as the case may be). Until amended pursuant to the **Grid Code**, these actual values, parameters or other information (as the case may be) will be the basis upon which the **National Electricity Transmission System** is planned, designed, built and operated in accordance with, amongst other things, the **Transmission Licences**, the **STC** and the **Grid Code**, and on which **NGET** therefore relies. In following the processes set out in the **BC**, **NGET** will use the data which has been supplied to it under the **BC** and the data supplied under **OC2** in relation to **Gensets**, but the provision of such data will not alter the data supplied by **Users** under the **PC**, which may only be amended as provided in the **PC**.

PC.A.1.11 **Estimated Registered Data** must contain the **User's** best estimate of the values, parameters or other information (as the case may be), acting as a reasonable and prudent **User** in all the circumstances.
PC.A.1.12 Certain data does not need to be supplied in relation to Embedded Power Stations or Embedded DC Converter Stations where these are connected at a voltage level below the voltage level directly connected to the National Electricity Transmission System except in connection with a CUSC Contract, or unless specifically requested by NGET.

PC.A.1.13 In the case of OTSUA, Schedule 18 of the Data Registration Code shall be construed in such a manner as to achieve the intent of such provisions by reference to the OTSUA and the Interface Point and all Connection Points.
PART 1 - STANDARD PLANNING DATA

PC.A.2 USER'S SYSTEM (AND OTSUA) DATA

PC.A.2.1 Introduction

PC.A.2.1.1 Each User, whether connected directly via an existing Connection Point to the National Electricity Transmission System, or seeking such a direct connection, or providing terms for connection of an Offshore Transmission System to its User System to NGET, shall provide NGET with data on its User System (and any OTSUA) which relates to the Connection Site (and in the case of OTSUA, the Interface Point) and/or which may have a system effect on the performance of the National Electricity Transmission System. Such data, current and forecast, is specified in PC.A.2.2 to PC.A.2.5. In addition each Generator in respect of its Embedded Large Power Stations and its Embedded Medium Power Stations subject to a Bilateral Agreement and each Network Operator in respect of Embedded Medium Power Stations within its System not subject to a Bilateral Agreement, shall provide NGET with fault infeed data as specified in PC.A.2.5.5 and each DC Converter owner with Embedded DC Converter Stations subject to a Bilateral Agreement, or Network Operator in the case of Embedded DC Converter Stations not subject to a Bilateral Agreement, connected to the Subtransmission System shall provide NGET with fault infeed data as specified in PC.A.2.5.6.

PC.A.2.1.2 Each User must reflect the system effect at the Connection Site(s) of any third party Embedded within its User System whether existing or proposed.

PC.A.2.1.3 Although not itemised here, each User with an existing or proposed Embedded Small Power Station, Embedded Medium Power Station or Embedded DC Converter Station with a Registered Capacity of less than 100MW or an Embedded installation of direct current converters which does not form a DC Converter Station in its User System may, at NGET's reasonable discretion, be required to provide additional details relating to the User's System between the Connection Site and the existing or proposed Embedded Small Power Station, Embedded Medium Power Station or Embedded DC Converter Station or Embedded installation of direct current converters which does not form a DC Converter Station.

PC.A.2.1.4 At NGET's reasonable request, additional data on the User's System (or OTSUA) will need to be supplied. Some of the possible reasons for such a request, and the data required, are given in PC.A.6.2, PC.A.6.4, PC.A.6.5 and PC.A.6.6.

PC.A.2.2 User's System (and OTSUA) Layout

PC.A.2.2.1 Each User shall provide a Single Line Diagram, depicting both its existing and proposed arrangement(s) of load current carrying Apparatus relating to both existing and proposed Connection Points (including in the case of OTSUA, Interface Points).

PC.A.2.2.2 The Single Line Diagram (three examples are shown in Appendix B) must include all parts of the User System operating at Supergrid Voltage throughout Great Britain and, in Scotland and Offshore, also all parts of the User System operating at 132kV, and those parts of its Subtransmission System at any Transmission Site. In the case of OTSDUW, the Single Line Diagram must also include the OTSUA. In addition, the Single Line Diagram must include all parts of the User's Subtransmission System (and any OTSUA) operating at a voltage greater than 50kV, and, in Scotland and Offshore, also all parts of the User's Subtransmission System (and any OTSUA) operating at a voltage greater than 30kV, which, under either intact network or Planned Outage conditions:-

(a) normally interconnects separate Connection Points, or busbars at a Connection Point which are normally run in separate sections; or

(b) connects Embedded Large Power Stations, or Embedded Medium Power Stations, or Embedded DC Converter Stations or Offshore Transmission Systems connected to the User’s Subtransmission System, to a Connection Point or Interface Point.
At the User’s discretion, the Single Line Diagram can also contain additional details of the User’s Subtransmission System (and any OTSUA) not already included above, and also details of the transformers connecting the User’s Subtransmission System to a lower voltage. With NGET’s agreement, the Single Line Diagram can also contain information about the User’s System (and any OTSUA) at a voltage below the voltage of the Subtransmission System.

The Single Line Diagram for a Power Park Module must include all parts of the System connecting generating equipment to the Grid Entry Point (or User System Entry Point if Embedded). As an alternative the User may choose to submit a Single Line Diagram with the equipment between the equivalent Power Park Unit and the Common Collection Busbar reduced to an electrically equivalent network. The format for a Single Line Diagram for a Power Park Module electrically equivalent system is shown in Appendix B.

The Single Line Diagram must include the points at which Demand data (provided under PC.A.4.3.4 and PC.A.4.3.5, or in the case of Generators, PC.A.5.) and fault infeed data (provided under PC.A.2.5) are supplied.

PC.A.2.2.3 The above mentioned Single Line Diagram shall include:

(a) electrical circuitry (ie. overhead lines, identifying which circuits are on the same towers, underground cables, power transformers, reactive compensation equipment and similar equipment); and

(b) substation names (in full or abbreviated form) with operating voltages.

In addition, for all load current carrying Apparatus operating at Supergrid Voltage throughout Great Britain and, in Scotland and Offshore, also at 132kV, (and any OTSUA) the Single Line Diagram shall include:-

(a) circuit breakers

(b) phasing arrangements.

PC.A.2.2.3.1 For the avoidance of doubt, the Single Line Diagram to be supplied is in addition to the Operation Diagram supplied pursuant to CC.7.4.

PC.A.2.2.4 For each circuit shown on the Single Line Diagram provided under PC.A.2.2.1, each User shall provide the following details relating to that part of its User System and OTSUA:

- Circuit Parameters:
  - Rated voltage (kV)
  - Operating voltage (kV)
  - Positive phase sequence reactance
  - Positive phase sequence resistance
  - Positive phase sequence susceptance
  - Zero phase sequence reactance (both self and mutual)
  - Zero phase sequence resistance (both self and mutual)
  - Zero phase sequence susceptance (both self and mutual)

In the case of a Single Line Diagram for a Power Park Module electrically equivalent system the data should be on a 100MVA base. Depending on the equivalent system supplied an equivalent tap changer range may need to be supplied. Similarly mutual values, rated voltage and operating voltage may be inappropriate. Additionally in the case of OTSUA, seasonal maximum continuous ratings and circuit lengths are to be provided in addition to the data required under PC.A.2.2.4.

PC.A.2.2.5 For each transformer shown on the Single Line Diagram provided under PC.A.2.2.1, each User (including those undertaking OTSDUW) shall provide the following details:

- Rated MVA
Voltage Ratio
Winding arrangement
Positive sequence reactance (max, min and nominal tap)
Positive sequence resistance (max, min and nominal tap)
Zero sequence reactance

PC.A.2.2.5.1. In addition, for all interconnecting transformers between the User's Supergrid Voltage System and the User's Subtransmission System throughout Great Britain and, in Scotland and Offshore, also for all interconnecting transformers between the User's 132kV System and the User's Subtransmission System (and any OTSUA) the User shall supply the following information:-

Tap changer range
Tap change step size
Tap changer type: on load or off circuit
Earthing method: Direct, resistance or reactance
Impedance (if not directly earthed )

PC.A.2.2.6 Each User shall supply the following information about the User's equipment installed at a Transmission Site (or in the case of OTSUA, all OTSDUW Plant and Apparatus):-

(a) **Switchgear.** For all circuit breakers:-
Rated voltage (kV)
Operating voltage (kV)
Rated 3-phase rms short-circuit breaking current, (kA)
Rated 1-phase rms short-circuit breaking current, (kA)
Rated 3-phase peak short-circuit making current, (kA)
Rated 1-phase peak short-circuit making current, (kA)
Rated rms continuous current (A)
DC time constant applied at testing of asymmetrical breaking abilities (secs)
In the case of OTSDUW Plant and Apparatus operating times for circuit breaker, Protection, trip relay and total operating time should be provided.

(b) **Substation Infrastructure.** For the substation infrastructure (including, but not limited to, switch disconnectors, disconnectors, current transformers, line traps, busbars, through bushings, etc):-
Rated 3-phase rms short-circuit withstand current (kA)
Rated 1-phase rms short-circuit withstand current (kA).
Rated 3-phase short-circuit peak withstand current (kA)
Rated 1-phase short-circuit peak withstand current (kA)
Rated duration of short circuit withstand (secs)
Rated rms continuous current (A)
A single value for the entire substation may be supplied, provided it represents the most restrictive item of current carrying apparatus.

PC.A.2.2.7 In the case of OTSUA the following should also be provided

(a) Automatic switching scheme schedules including diagrams and an explanation of how the System will operate and what plant will be affected by the schemes Operation.
(b) **Intertripping** schemes both Generation and Demand. In each case a diagram of the scheme and an explanation of how the System will operate and what Plant will be affected by the schemes Operation.

PC.A.2.3 Lumped System Susceptance

PC.A.2.3.1 For all parts of the User’s Subtransmission System (and any OTSUA) which are not included in the Single Line Diagram provided under PC.A.2.2.1, each User shall provide the equivalent lumped shunt susceptance at nominal Frequency.

PC.A.2.3.1.1 This should include shunt reactors connected to cables which are not normally in or out of service independent of the cable (ie. they are regarded as part of the cable).

PC.A.2.3.1.2 This should not include:

(a) independently switched reactive compensation equipment connected to the User’s System specified under PC.A.2.4, or;

(b) any susceptance of the User’s System inherent in the Demand (Reactive Power) data specified under PC.A.4.3.1.

PC.A.2.4 Reactive Compensation Equipment

PC.A.2.4.1 For all independently switched reactive compensation equipment (including any OTSUA), including that shown on the Single Line Diagram, not operated by NGET and connected to the User’s System at 132kV and above in England and Wales and 33kV and above in Scotland and Offshore (including any OTSDUW Plant and Apparatus operating at High Voltage), other than power factor correction equipment associated directly with Customers’ Plant and Apparatus, the following information is required:

(a) type of equipment (eg. fixed or variable);

(b) capacitive and/or inductive rating or its operating range in MVAr;

(c) details of any automatic control logic to enable operating characteristics to be determined;

(d) the point of connection to the User’s System (including OTSUA) in terms of electrical location and System voltage.

(e) In the case of OTSDUW Plant and Apparatus the User should also provide:-

(i) Connection node, voltage, rating, power loss, tap range and connection arrangement.

(ii) A mathematical representation in block diagram format to model the control of any dynamic compensation plant. The model should be suitable for RMS dynamic stability type studies where each time constant should be no less than 10ms.

(iii) For Static Var Compensation equipment the User should provide:

- HV Node
- LV Node
- Control Node
- Nominal Voltage (kV)
- Target Voltage (kV)
- Maximum MVAr at HV
- Minimum MVAr at HV
- Slope %
- Voltage dependant Q Limit
- Normal Running Mode
- Positive and zero phase sequence resistance and reactance
- Transformer winding type
- Connection arrangements
PC.A.2.4.2  DC Converter Station owners (and a User where the OTSUA includes an OTSDUW DC Converter) are also required to provide information about the reactive compensation and harmonic filtering equipment required to ensure that their Plant and Apparatus (and the OTSUA) complies with the criteria set out in CC.6.1.5.

PC.A.2.5  Short Circuit Contribution to National Electricity Transmission System

PC.A.2.5.1  General

(a)  To allow NGET to calculate fault currents, each User is required to provide data, calculated in accordance with Good Industry Practice, as set out in the following paragraphs of PC.A.2.5.

(b)  The data should be provided for the User's System with all Generating Units, Power Park Units and DC Converters Synchronised to that User's System (and any OTSUA where appropriate).  The User must ensure that the pre-fault network conditions reflect a credible System operating arrangement.

(c)  The list of data items required, in whole or part, under the following provisions, is set out in PC.A.2.5.6.  Each of the relevant following provisions identifies which data items in the list are required for the situation with which that provision deals.

The fault currents in sub-paragraphs (a) and (b) of the data list in PC.A.2.5.6 should be based on an a.c. load flow that takes into account any pre-fault current flow across the Point of Connection (and in the case of OTSUA, Interface Points and Connection Points) being considered.

Measurements made under appropriate System conditions may be used by the User to obtain the relevant data.

(d)  NGET may at any time, in writing, specifically request for data to be provided for an alternative System condition, for example minimum plant, and the User will, insofar as such request is reasonable, provide the information as soon as reasonably practicable following the request.

PC.A.2.5.2  Network Operators and Non-Embedded Customers are required to submit data in accordance with PC.A.2.5.4.  Generators, DC Converter Station owners and Network Operators, in respect of Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement within such Network Operator's Systems are required to submit data in accordance with PC.A.2.5.5.

PC.A.2.5.3  Where prospective short-circuit currents on equipment owned, operated or managed by NGET are close to the equipment rating, and in NGET's reasonable opinion more accurate calculations of the prospective short circuit currents are required, then NGET will request additional data as outlined in PC.A.6.6 below.

PC.A.2.5.4  Data from Network Operators and Non-Embedded Customers

PC.A.2.5.4.1  Data is required to be provided at each node on the Single Line Diagram provided under PC.A.2.2.1 at which motor loads and/or Embedded Small Power Stations and/or Embedded Medium Power Stations and/or Embedded installations of direct current converters which do not form a DC Converter Station are connected, assuming a fault at that location, as follows:-

The data items listed under the following parts of PC.A.2.5.6:-

(a)  (i), (ii), (iii), (iv), (v) and (vi);

and the data items shall be provided in accordance with the detailed provisions of PC.A.2.5.6(c) - (f).

PC.A.2.5.4.2  Network Operators shall provide the following data items in respect of each Interface Point within their User System:

(a)  Maximum Export Capacity;
(b) **Maximum Import Capacity**; and,

(c) **Interface Point Target Voltage/Power Factor**

**Network Operators** shall alongside these parameters include details of any manual or automatic post fault actions to be taken by the owner / operator of the **Offshore Transmission System** connected to such **Interface Point** that are required by the **Network Operator**.

**PC.A.2.5.5** Data from Generators (including Generators undertaking OTSDUW), DC Converter Station owners and from Network Operators in respect of Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement within such Network Operator’s Systems.

**PC.A.2.5.5.1** For each **Generating Unit** with one or more associated **Unit Transformers**, the **Generator**, or the **Network Operator** in respect of **Embedded Medium Power Stations** not subject to a **Bilateral Agreement** and **Embedded DC Converter Stations** not subject to a **Bilateral Agreement** within such **Network Operator’s System** is required to provide values for the contribution of the **Power Station Auxiliaries** (including **Auxiliary Gas Turbines** or **Auxiliary Diesel Engines**) to the fault current flowing through the **Unit Transformer(s)**.

The data items listed under the following parts of **PC.A.2.5.6(a)** should be provided:-

(i), (ii) and (v);

(iii) if the associated **Generating Unit** step-up transformer can supply zero phase sequence current from the **Generating Unit** side to the **National Electricity Transmission System**;

(iv) if the value is not 1.0 p.u;

and the data items shall be provided in accordance with the detailed provisions of **PC.A.2.5.6(c)** - (f), and with the following parts of this **PC.A.2.5.5**.

**PC.A.2.5.5.2** Auxiliary motor short circuit current contribution and any **Auxiliary Gas Turbine Unit** contribution through the **Unit Transformers** must be represented as a combined short circuit current contribution at the **Generating Unit’s terminals**, assuming a fault at that location.

**PC.A.2.5.5.3** If the **Power Station** or **DC Converter Station** (or **OTSDUW Plant and Apparatus** which provides a fault infeed) has separate **Station Transformers**, data should be provided for the fault current contribution from each transformer at its high voltage terminals, assuming a fault at that location, as follows:-

The data items listed under the following parts of **PC.A.2.5.6**

(a) (i), (ii), (iii), (iv), (v) and (vi);

and the data items shall be provided in accordance with the detailed provisions of **PC.A.2.5.6(b)** - (f).

**PC.A.2.5.5.4** Data for the fault infeeds through both **Unit Transformers** and **Station Transformers** shall be provided for the normal running arrangement when the maximum number of **Generating Units** are **Synchronised** to the **System** or when all the **DC Converters** at a **DC Converter Station** are transferring **Rated MW** in either direction. Where there is an alternative running arrangement (or transfer in the case of a **DC Converter Station**) which can give a higher fault infeed through the **Station Transformers**, then a separate data submission representing this condition shall be made.

**PC.A.2.5.5.5** Unless the normal operating arrangement within the **Power Station** is to have the **Station** and **Unit Boards** interconnected within the **Power Station**, no account should be taken of the interconnection between the **Station Board** and the **Unit Board**.

**PC.A.2.5.5.6** Auxiliary motor short circuit current contribution and any auxiliary **DC Converter Station** contribution through the **Station Transformers** must be represented as a combined short circuit current contribution through the **Station Transformers**.
Where a Manufacturer’s Data & Performance Report exists in respect of the model of the Power Park Unit, the User may opt to reference the Manufacturer’s Data & Performance Report as an alternative to the provision of data in accordance with this PC.A.2.5.5.7. For the avoidance of doubt, all other data provision pursuant to the Grid Code shall still be provided including a Single Line Diagram and those data pertaining thereto.

For each Power Park Module and each type of Power Park Unit (e.g. Doubly Fed Induction Generator) (and any OTSDUW Plant and Apparatus which provides a fault infeed), including any Auxiliaries, positive, negative and zero sequence root mean square current values are to be provided of the contribution to the short circuit current flowing at:

(i) the Power Park Unit terminals, or the Common Collection Busbar if an equivalent Single Line Diagram and associated data as described in PC.A.2.2.2 is provided, and

(ii) the Grid Entry Point (and in case of OTSUA, Transmission Interface Point), or User System Entry Point if Embedded

for the following solid faults at the Grid Entry Point (and in case of OTSUA, Interface Point), or User System Entry Point if Embedded:

(i) a symmetrical three phase short circuit
(ii) a single phase to earth short circuit
(iii) a phase to phase short circuit
(iv) a two phase to earth short circuit

For a Power Park Module in which one or more of the Power Park Units utilise a protective control such as a crowbar circuit, the data should indicate whether the protective control will act in each of the above cases and the effects of its action shall be included in the data. For any case in which the protective control will act, the data for the fault shall also be submitted for the limiting case in which the protective circuit will not act, which may involve the application of a non-solid fault, and the positive, negative and zero sequence retained voltages at

(i) the Power Park Unit terminals, or the Common Collection Busbar if an equivalent Single Line Diagram and associated data is provided and

(ii) the Grid Entry Point, or User System Entry Point if Embedded

in this limiting case shall be provided.

For each fault for which data is submitted, the data items listed under the following parts of PC.A.2.5.6(a) shall be provided:-

(iv), (vii), (viii), (ix), (x);

In addition, if an equivalent Single Line Diagram has been provided the data items listed under the following parts of PC.A.2.5.6(a) shall be provided:-

(xi), (xii), (xiii);

In addition, for a Power Park Module in which one or more of the Power Park Units utilise a protective control such as a crowbar circuit:-

the data items listed under the following parts of PC.A.2.5.6(a) shall be provided:-

(xiv), (xv);

All of the above data items shall be provided in accordance with the detailed provisions of PC.A.2.5.6(c), (d), (f).
Should actual data in respect of fault infeeds be unavailable at the time of the application for a **CUSC Contract** or **Embedded Development Agreement**, a limited subset of the data, representing the maximum fault infeed that may result from all of the plant types being considered, shall be submitted. This data will, as a minimum, represent the root mean square of the positive, negative and zero sequence components of the fault current for both single phase and three phase solid faults at the **Grid Entry Point** (or **User System Entry Point** if Embedded) at the time of fault application and 50ms following fault application. Actual data in respect of fault infeeds shall be submitted to **NGET** as soon as it is available, in line with **PC.A.1.2**

**PC.A.2.5.6 Data Items**

(a) The following is the list of data utilised in this part of the **PC**. It also contains rules on the data which generally apply:-

(i) Root mean square of the symmetrical three-phase short circuit current infeed at the instant of fault, \(I_1\);

(ii) Root mean square of the symmetrical three-phase short circuit current after the subtransient fault current contribution has substantially decayed, \(I_1'\);

(iii) the zero sequence source resistance and reactance values of the **User’s System** as seen from the node on the **Single Line Diagram** provided under **PC.A.2.2.1** (or **Station Transformer** high voltage terminals or **Generating Unit** terminals or **DC Converter** terminals, as appropriate) consistent with the infeed described in **PC.A.2.5.1.(b)**;

(iv) root mean square of the pre-fault voltage at which the maximum fault currents were calculated;

(v) the positive sequence X/R ratio at the instant of fault;

(vi) the negative sequence resistance and reactance values of the **User’s System** seen from the node on the **Single Line Diagram** provided under **PC.A.2.2.1** (or **Station Transformer** high voltage terminals, or **Generating Unit** terminals or **DC Converter** terminals if appropriate) if substantially different from the values of positive sequence resistance and reactance which would be derived from the data provided above;

(vii) A continuous trace and a table showing the root mean square of the positive, negative and zero sequence components of the short circuit current between zero and 140ms at 10ms intervals;

(viii) The **Active Power** (or **Interface Point Capacity**) being exported pre-fault by the **OTSDUW Plant and Apparatus** being generated pre-fault by the **Power Park Module** and by each type of **Power Park Unit**;

(ix) The reactive compensation shown explicitly on the **Single Line Diagram** that is switched in;

(x) The **Power Factor** of the **Power Park Module** and of each **Power Park Unit** type;

(xi) The positive sequence X/R ratio of the equivalent at the **Common Collection Busbar** or **Interface Point** in the case of **OTSUA**;

(xii) The minimum zero sequence impedance of the equivalent seen from the **Common Collection Busbar** or **Interface Point** in the case of **OTSUA**;

(xiii) The number of **Power Park Units** represented in the equivalent **Power Park Unit**;

(xiv) The additional rotor resistance and reactance (if any) that is applied to the **Power Park Unit** under a fault condition;

(xv) A continuous trace and a table showing the root mean square of the positive, negative and zero sequence components of the retained voltage at the fault point and **Power Park Unit** terminals, or the **Common Collection Busbar** if an equivalent **Single Line Diagram** and associated data as described in **PC.A.2.2.2** is provided or **Interface Point** in the case of **OTSUA**, representing the limiting case, which may involve the application of a non-solid fault, required to not cause operation of the protective
control;

(b) In considering this data, unless the User notifies NGET accordingly at the time of data submission, NGET will assume that the time constant of decay of the subtransient fault current corresponding to the change from $I_1^{a_0}$ to $I_1^*$, ($T^*$) is not significantly different from 40ms. If that assumption is not correct in relation to an item of data, the User must inform NGET at the time of submission of the data.

(c) The value for the X/R ratio must reflect the rate of decay of the d.c. component that may be present in the fault current and hence that of the sources of the initial fault current. All shunt elements and loads must therefore be deleted from any system model before the X/R ratio is calculated.

(d) In producing the data, the User may use "time step analysis" or "fixed-point-in-time analysis" with different impedances.

(e) If a fixed-point-in-time analysis with different impedances method is used, then in relation to the data submitted under (a) (i) above, the data will be required for "time zero" to give $I_1^*$. The figure of 120ms is consistent with a decay time constant $T^*$ of 40ms, and if that figure is different, then the figure of 120ms must be changed accordingly.

(f) Where a "time step analysis" is carried out, the X/R ratio may be calculated directly from the rate of decay of the d.c. component. The X/R ratio is not that given by the phase angle of the fault current if this is based on a system calculation with shunt loads, but from the Thévenin equivalent of the system impedance at the instant of fault with all non-source shunts removed.

PC.A.3 GENERATING UNIT AND DC CONVERTER DATA

PC.A.3.1 Introduction

Directly Connected

PC.A.3.1.1 Each Generator and DC Converter Station owner (and a User where the OTSUA includes an OTSDUW DC Converter) with an existing, or proposed, Power Station or DC Converter Station directly connected, or to be directly connected, to the National Electricity Transmission System (or in the case of OTSUA, the Interface Point), shall provide NGET with data relating to that Power Station or DC Converter Station, both current and forecast, as specified in PC.A.3.2 to PC.A.3.4.

Embedded

PC.A.3.1.2 (a) Each Generator and DC Converter Station owner in respect of its existing, and/or proposed, Embedded Large Power Stations and/or Embedded DC Converter Stations and/or its Embedded Medium Power Stations subject to a Bilateral Agreement and each Network Operator in respect of its Embedded Medium Power Stations not subject to a Bilateral Agreement and/or Embedded DC Converter Stations not subject to a Bilateral Agreement within such Network Operator’s System in each case connected to the Subtransmission System, shall provide NGET with data relating to that Power Station or DC Converter Station, both current and forecast, as specified in PC.A.3.2 to PC.A.3.4.

(b) No data need be supplied in relation to any Small Power Station or any Medium Power Station or installations of direct current converters which do not form a DC Converter Station, connected at a voltage level below the voltage level of the Subtransmission System except:-

(i) in connection with an application for, or under, a CUSC Contract, or

(ii) unless specifically requested by NGET under PC.A.3.1.4.

PC.A.3.1.3 (a) Each Network Operator shall provide NGET with the data specified in PC.A.3.2.2(c)(i) and (ii) and PC.A.3.2.2(i).
(b) **Network Operators** need not submit planning data in respect of an **Embedded Small Power Station** unless required to do so under PC.A.1.2(b) or unless specifically requested under PC.A.3.1.4 below, in which case they will supply such data.

PC.A.3.1.4 (a) PC.A.4.2.4(b) and PC.A.4.3.2(a) explain that the forecast **Demand** submitted by each **Network Operator** must be net of the output of all **Small Power Stations** and **Medium Power Stations** and **Customer Generating Plant** and all installations of direct current converters which do not form a **DC Converter Station**. **Embedded** within that **Network Operator’s System**. The **Network Operator** must inform NGET of the number of such **Embedded Power Stations** and such **Embedded** installations of direct current converters (including the number of **Generating Units** or **Power Park Modules** or **DC Converters**) together with their summated capacity.

(b) On receipt of this data, the **Network Operator** or **Generator** (if the data relates to **Power Stations** referred to in PC.A.3.1.2) may be further required, at NGET’s reasonable discretion, to provide details of **Embedded Small Power Stations** and **Embedded Medium Power Stations** and **Customer Generating Plant** and **Embedded** installations of direct current converters which do not form a **DC Converter Station**, both current and forecast, as specified in PC.A.3.2 to PC.A.3.4. Such requirement would arise where NGET reasonably considers that the collective effect of a number of such **Embedded Power Stations** and **Customer Generating Plants** and **Embedded** installations of direct current converters may have a significant system effect on the **National Electricity Transmission System**.

**Busbar Arrangements**

PC.A.3.1.5 Where **Generating Units**, which term includes **CCGT Units** and **Power Park Modules**, and **DC Converters**, are connected to the **National Electricity Transmission System** via a busbar arrangement which is or is expected to be operated in separate sections, the section of busbar to which each **Generating Unit**, **DC Converter** or **Power Park Module** is connected is to be identified in the submission.

PC.A.3.2 **Output Data**

PC.A.3.2.1 (a) **Large Power Stations** and **Gensets**

Data items PC.A.3.2.2 (a), (b), (c), (d), (e), (f) and (h) are required with respect to each **Large Power Station** and each **Generating Unit** and **Power Park Module** of each **Large Power Station** and for each **Genset** (although (a) is not required for **CCGT Units** and (b), (d) and (e) are not normally required for **CCGT Units** and (a), (b), (c), (d), (e), (f) and (h) are not normally required for **Power Park Units**).

(b) **Embedded Small Power Stations** and **Embedded Medium Power Stations**

Data item PC.A.3.2.2 (a) is required with respect to each **Embedded Small Power Station** and **Embedded Medium Power Station** and each **Generating Unit** and **Power Park Module** of each **Embedded Small Power Station** and **Embedded Medium Power Station** (although (a) is not required for **CCGT Units** or **Power Park Units**). In addition, data item PC.A.3.2.2(c)(ii) is required with respect to each **Embedded Medium Power Station**.

(c) **CCGT Units/Modules**

(i) Data item PC.A.3.2.2 (g) is required with respect to each **CCGT Unit**;

(ii) data item PC.A.3.2.2 (a) is required with respect to each **CCGT Module**; and

(iii) data items PC.A.3.2.2 (b), (c), (d) and (e) are required with respect to each **CCGT Module** unless NGET informs the relevant **User** in advance of the submission that it needs the data items with respect to each **CCGT Unit** for particular studies, in which case it must be supplied on a **CCGT Unit** basis.
Where any definition utilised or referred to in relation to any of the data items does not reflect **CCGT Units**, such definition shall be deemed to relate to **CCGT Units** for the purposes of these data items. Any **Schedule** in the DRC which refers to these data items shall be interpreted to incorporate the **CCGT Unit** basis where appropriate;

(d) **Cascade Hydro Schemes**

Data item PC.A.3.2.2(i) is required with respect to each **Cascade Hydro Scheme**.

(e) **Power Park Units/Modules**

Data items PC.A.3.2.2 (k) is required with respect to each **Power Park Module**.

(f) **DC Converters**

Data items PC.A.3.2.2 (a), (b), (c), (d) (e) (f) (h) and (i) are required with respect to each **DC Converter Station** and each **DC Converter** in each **DC Converter Station**. For installations of direct current converters which do not form a **DC Converter Station** only data item PC.A.3.2.2.(a) is required.

**PC.A.3.2.2** Items (a), (b), (d), (e), (f), (g), (h), (i), (j) and (k) are to be supplied by each **Generator**, **DC Converter Station** owner or **Network Operator** (as the case may be) in accordance with PC.A.3.1.1, PC.A.3.1.2, PC.A.3.1.3 and PC.A.3.1.4. Items (a), and (f)(iv) are to be supplied (as applicable) by a **User** in the case of OTSUA which includes an **OTSDUW DC Converter**. Item (c) is to be supplied by each **Network Operator** in all cases:-

(a) **Registered Capacity** (MW) or **Interface Point Capacity** in the case of OTSDUW;

(b) **Output Usable** (MW) on a monthly basis;

(c) (i) **System Constrained Capacity** (MW) ie. any constraint placed on the capacity of the **Embedded Generating Unit**, **Embedded Power Park Module**, an **Offshore Transmission System** at an **Interface Point** or **DC Converter** at an Embedded **DC Converter Station** due to the **Network Operator’s System** in which it is Embedded. Where **Generating Units** (which term includes **CCGT Units**), **Power Park Modules**, **Offshore Transmission Systems** at an **Interface Point** or **DC Converters** are connected to a **Network Operator’s User System** via a busbar arrangement which is or is expected to be operated in separate sections, details of busbar running arrangements and connected circuits at the substation to which the **Embedded Generating Unit**, **Embedded Power Park Module**, **Offshore Transmission System** at an **Interface Point** or **Embedded DC Converter** is connected sufficient for **NGET** to determine where the MW generated by each **Generating Unit**, **Power Park Module** or **DC Converter** at that **Power Station** or **DC Converter Station** or **Offshore Transmission System** at an **Interface Point** would appear onto the **National Electricity Transmission System**;

   (ii) any **Reactive Despatch Network Restrictions**;

(d) **Minimum Generation** (MW);

(e) MW obtainable from **Generating Units**, **Power Park Modules** or **DC Converters** at a **DC Converter Station** in excess of Registered Capacity;

(f) **Generator Performance Chart**:  

   (i) at the **Onshore Synchronous Generating Unit** stator terminals

   (ii) at the electrical point of connection to the **Offshore Transmission System** for an **Offshore Synchronous Generating Unit**.

   (iii) at the electrical point of connection to the **National Electricity Transmission System** (or **User System** if **Embedded**) for a **Non Synchronous Generating Unit** (excluding a **Power Park Unit**), **Power Park Module** and **DC Converter** at a **DC Converter Station**;

   (iv) at the **Interface Point** for **OTSDUW Plant and Apparatus**
Where a Reactive Despatch Network Restriction applies, its existence and details should be highlighted on the Generator Performance Chart, in sufficient detail for NGET to determine the nature of the restriction.

(g) a list of the CCGT Units within a CCGT Module, identifying each CCGT Unit, and the CCGT Module of which it forms part, unambiguously. In the case of a Range CCGT Module, details of the possible configurations should also be submitted, together:-

(i) (in the case of a Range CCGT Module connected to the National Electricity Transmission System) with details of the single Grid Entry Point (there can only be one) at which power is provided from the Range CCGT Module;

(ii) (in the case of an Embedded Range CCGT Module) with details of the single User System Entry Point (there can only be one) at which power is provided from the Range CCGT Module;

Provided that, nothing in this sub-paragraph (g) shall prevent the busbar at the relevant point being operated in separate sections;

(h) expected running regime(s) at each Power Station or DC Converter Station and type of Generating Unit, eg. Steam Unit, Gas Turbine Unit, Combined Cycle Gas Turbine Unit, Power Park Module, Novel Units (specify by type), etc;

(i) a list of Power Stations and Generating Units within a Cascade Hydro Scheme, identifying each Generating Unit and Power Station and the Cascade Hydro Scheme of which each form part unambiguously. In addition:

(i) details of the Grid Entry Point at which Active Power is provided, or if Embedded the Grid Supply Point(s) within which the Generating Unit is connected;

(ii) where the Active Power output of a Generating Unit is split between more than one Grid Supply Points the percentage that would appear under normal and outage conditions at each Grid Supply Point.

(j) The following additional items are only applicable to DC Converters at DC Converter Stations.

Registered Import Capacity (MW);

Import Usable (MW) on a monthly basis;

Minimum Import Capacity (MW);

MW that may be absorbed by a DC Converter in excess of Registered Import Capacity and the duration for which this is available;

(k) the number and types of the Power Park Units within a Power Park Module, identifying each Power Park Unit, the Power Park Module of which it forms part and identifying the BM Unit of which each Power Park Module forms part, unambiguously. In the case of a Power Station directly connected to the National Electricity Transmission System with multiple Power Park Modules where Power Park Units can be selected to run in different Power Park Modules and/or Power Park Modules can be selected to run in different BM Units, details of the possible configurations should also be submitted. In addition for Offshore Power Park Modules, the number of Offshore Power Park Strings that are aggregated into one Offshore Power Park Module should also be submitted.

PC.A.3.2.3 Notwithstanding any other provision of this PC, the CCGT Units within a CCGT Module, details of which are required under paragraph (g) of PC.A.3.2.2, can only be amended in accordance with the following provisions:-

(a) If the CCGT Module is a Normal CCGT Module, the CCGT Units within that CCGT Module can only be amended such that the CCGT Module comprises different CCGT Units if NGET gives its prior consent in writing. Notice of the wish to amend the CCGT Units within such a CCGT Module must be given at least 6 months before it is wished for the amendment to take effect;
(b) if the CCGT Module is a Range CCGT Module, the CCGT Units within that CCGT Module and the Grid Entry Point at which the power is provided can only be amended as described in BC1.A1.6.4.

PC.A.3.2.4 Notwithstanding any other provision of this PC, the Power Park Units within a Power Park Module, and the Power Park Modules within a BM Unit, details of which are required under paragraph (k) of PC.A.3.2.2, can only be amended in accordance with the following provisions:

(a) if the Power Park Units within that Power Park Module can only be amended such that the Power Park Module comprises different Power Park Units due to repair/replacement of individual Power Park Units if NGET gives its prior consent in writing. Notice of the wish to amend a Power Park Unit within such a Power Park Module must be given at least 4 weeks before it is wished for the amendment to take effect;

(b) if the Power Park Units within that Power Park Module and/or the Power Park Modules within that BM Unit can be selected to run in different Power Park Modules and/or BM Units as an alternative operational running arrangement the Power Park Units within the Power Park Module, the BM Unit of which each Power Park Module forms part, and the Grid Entry Point at which the power is provided can only be amended as described in BC1.A.1.8.4.

PC.A.3.3. Rated Parameters Data

PC.A.3.3.1 The following information is required to facilitate an early assessment, by NGET, of the need for more detailed studies;

(a) for all Generating Units (excluding Power Park Units) and Power Park Modules:

   Rated MVA

   Rated MW;

(b) for each Synchronous Generating Unit:

   Short circuit ratio

   Direct axis transient reactance;

   Inertia constant (for whole machine), MWsecs/MVA;

(c) for each Synchronous Generating Unit step-up transformer:

   Rated MVA

   Positive sequence reactance (at max, min and nominal tap);

(d) for each DC Converter at a DC Converter Station or DC Converter connecting a Power Park Module (including when forming part of OTSUA).

   DC Converter type (e.g. current/voltage sourced)

   Rated MW per pole for import and export

   Number of poles and pole arrangement

   Rated DC voltage/pole (kV)

   Return path arrangement

   Remote AC connection arrangement (excluding OTSDUW DC Converters)

(e) for each type of Power Park Unit in a Power Park Module not connected to the Total System by a DC Converter:

   Rated MVA

   Rated MW

   Rated terminal voltage

   Inertia constant, (MWsec/MVA)

   Additionally, for Power Park Units that are squirrel-cage or doubly-fed induction
generators driven by wind turbines:

- Stator reactance.
- Magnetising reactance.
- Rotor resistance (at rated running)
- Rotor reactance (at rated running)
- The generator rotor speed range (minimum and maximum speeds in RPM) (for doubly-fed induction generators only)
- Converter MVA rating (for doubly-fed induction generators only)

For a **Power Park Unit** consisting of a synchronous machine in combination with a back-to-back **DC Converter**, or for a **Power Park Unit** not driven by a wind turbine, the data to be supplied shall be agreed with **NGET** in accordance with **PC.A.7**.

This information should only be given in the data supplied in accordance with **PC.4.4** and **PC.4.5**.

**PC.A.3.4** General Generating Unit Power Park Module and DC Converter Data

**PC.A.3.4.1** The point of connection to the **National Electricity Transmission System** or the **Total System**, if other than to the **National Electricity Transmission System**, in terms of geographical and electrical location and system voltage is also required.

**PC.A.3.4.2**

(a) Type of **Generating Unit** (i.e. **Synchronous Generating Unit**, **Non-Synchronous Generating Unit**, **DC Converter** or **Power Park Module**).

(b) In the case of a **Synchronous Generating Unit** details of the **Exciter** category, for example whether it is a rotating **Exciter** or a static **Exciter** or in the case of a **Non-Synchronous Generating Unit** the voltage control system.

(c) Whether a **Power System Stabiliser** is fitted.

**PC.A.4** DEMAND AND ACTIVE ENERGY DATA

**PC.A.4.1** Introduction

**PC.A.4.1.1** Each **User** directly connected to the **National Electricity Transmission System** with **Demand** shall provide **NGET** with the **Demand** data, historic, current and forecast, as specified in **PC.A.4.2** and **PC.A.4.3**. Paragraphs **PC.A.4.1.2** and **PC.A.4.1.3** apply equally to **Active Energy** requirements as to **Demand** unless the context otherwise requires.

**PC.A.4.1.2** Data will need to be supplied by:

(a) each **Network Operator**, in relation to **Demand** and **Active Energy** requirements on its **User System**;

(b) each **Non-Embedded Customer** (including **Pumped Storage Generators** with respect to Pumping **Demand**) in relation to its **Demand** and **Active Energy** requirements.

(c) each **DC Converter Station** owner in relation to **Demand** and **Active Energy** transferred (imported) to its **DC Converter Station**.

(d) each **OTSDUW DC Converter** in relation to the **Demand** at each **Interface Point** and **Connection Point**.

**Demand** of **Power Stations** directly connected to the **National Electricity Transmission System** is to be supplied by the **Generator** under **PC.A.5.2**.

**PC.A.4.1.3** References in this **PC** to data being supplied on a half hourly basis refer to it being supplied for each period of 30 minutes ending on the hour or half-hour in each hour.

**PC.A.4.1.4** Access Periods and Access Groups

**PC.A.4.1.4.1** Each **Connection Point** must belong to one, and only one, **Access Group**.

**PC.A.4.1.4.2** Each **Transmission Interface Circuit** must have an **Access Period**.
PC.A.4.1.4.3 The Access Period shall

(a) normally be a minimum of 8 continuous weeks and can occur in any one of three maintenance years during the period from calendar week 13 to calendar week 43 (inclusive) in each year; or,

(b) exceptionally and provided that agreement is reached between NGET and the relevant User(s), such agreement to be sought in accordance with PC.7, the Access Period may be of a period not less than 4 continuous weeks and can occur in any one of three maintenance years during the period from calendar week 10 to calendar week 43 (inclusive) in each year.

PC.A.4.1.4.4 NGET shall submit in writing no later than calendar week 6 in each year:

(a) the calendar weeks defining the proposed start and finish of each Access Period for each Transmission Interface Circuit; and

(b) the Connection Points in each Access Group.

The submission by NGET under PC.A.4.1.4.4 (a) above shall commence in 2010 and shall then continue each year thereafter. The submission by NGET under PC.A.4.1.4.4 (b) shall commence in 2009 and then continue each year thereafter.

PC.A.4.1.4.5 It is permitted for Access Periods to overlap in the same Access Group and in the same maintenance year. However, where possible Access Periods will be sought by NGET that do not overlap with any other Access Period within that Access Group for each maintenance year. Where it is not possible to avoid overlapping Access Periods, NGET will indicate to Users by calendar week 6 its initial view of which Transmission Interface Circuits will need to be considered out of service concurrently for the purpose of assessing compliance to Licence Standards. The obligation on NGET to indicate which Transmission Interface Circuits will need to be considered out of service concurrently for the purpose of assessing compliance to Licence Standards shall commence in 2010 and shall continue each year thereafter.

PC.A.4.1.4.6 Following the submission(s) by NGET by week 6 in each year and where required by either party, both NGET and the relevant User(s) shall use their reasonable endeavours to agree the appropriate Access Group(s) and Access Period for each Transmission Interface Circuit prior to week 17 in each year. The requirement on NGET and the relevant User(s) to agree, shall commence in respect of Access Groups only in 2010. This paragraph PC.A.4.1.4.6 shall apply in its entirety in 2011 and shall then continue each year thereafter.

PC.A.4.1.4.7 In exceptional circumstances, and with the agreement of all parties concerned, where a Connection Point is specified for the purpose of the Planning Code as electrically independent Subtransmission Systems, then data submissions can be on the basis of two (or more) individual Connection Points.

PC.A.4.2 User’s User System Demand (Active Power) and Active Energy Data

PC.A.4.2.1 Forecast daily Demand (Active Power) profiles, as specified in (a), (b) and (c) below, in respect of each of the User’s User Systems (each summated over all Grid Supply Points in each User System) are required for:

(a) peak day on each of the User’s User Systems (as determined by the User) giving the numerical value of the maximum Demand (Active Power) that in the Users’ opinion could reasonably be imposed on the National Electricity Transmission System;

(b) day of peak National Electricity Transmission System Demand (Active Power) as notified by NGET pursuant to PC.A.4.2.2;

(c) day of minimum National Electricity Transmission System Demand (Active Power) as notified by NGET pursuant to PC.A.4.2.2.

In addition, the total Demand (Active Power) in respect of the time of peak National Electricity Transmission System Demand in the preceding Financial Year in respect of each of the User’s User Systems (each summated over all Grid Supply Points in each User System) both outturn and weather corrected shall be supplied.
PC.A.4.2.2 No later than calendar week 17 each year NGET shall notify each Network Operator and Non-Embedded Customer in writing of the following, for the current Financial Year and for each of the following seven Financial Years, which will, until replaced by the following year’s notification, be regarded as the relevant specified days and times under PC.A.4.2.1:

(a) the date and time of the annual peak of the National Electricity Transmission System Demand;
(b) the date and time of the annual minimum of the National Electricity Transmission System Demand;
(c) the relevant Access Period for each Transmission Interface Circuit; and,
(d) Concurrent Access Periods of two or more Transmission Interface Circuits (if any) that are situated in the same Access Group.

The submissions by NGET made under PC.A.4.2.1 (c) and PC.A.4.2.1 (d) above shall commence in 2010 and shall then continue in respect of each year thereafter.

PC.A.4.2.3 The total Active Energy used on each of the Network Operators’ or Non-Embedded Customers’ User Systems (each summated over all Grid Supply Points in each User System) in the preceding Financial Year, both outturn and weather corrected, together with a prediction for the current financial year, is required. Each Active Energy submission shall be subdivided into the following categories of Customer tariff:

- LV1
- LV2
- LV3
- HV
- EHV
- Traction
- Lighting

In addition, the total User System losses and the Active Energy provided by Embedded Small Power Stations and Embedded Medium Power Stations shall be supplied.

PC.A.4.2.4 All forecast Demand (Active Power) and Active Energy specified in PC.A.4.2.1 and PC.A.4.2.3 shall:

(a) in the case of PC.A.4.2.1(a), (b) and (c), be such that the profiles comprise average Active Power levels in ‘MW’ for each time marked half hour throughout the day;
(b) in the case of PC.A.4.2.1(a), (b) and (c), be that remaining after any deductions reasonably considered appropriate by the User to take account of the output profile of all Embedded Small Power Stations and Embedded Medium Power Stations and Customer Generating Plant and imports across Embedded External Interconnections including imports across Embedded installations of direct current converters which do not form a DC Converter Station and Embedded DC Converter Stations with a Registered Capacity of less than 100MW;
(c) be based upon Annual ACS Conditions for times that occur during week 44 through to week 12 (inclusive) and based on Average Conditions for weeks 13 to 43 (inclusive).

PC.A.4.3 Connection Point Demand (Active and Reactive Power)

PC.A.4.3.1 Forecast Demand (Active Power) and Power Factor (values of the Power Factor at maximum and minimum continuous excitation may be given instead where more than 95% of the total Demand at a Connection Point is taken by synchronous motors) to be met at each Connection Point within each Access Group is required for:

(a) the time of the maximum Demand (Active Power) at the Connection Point (as determined by the User) that in the User’s opinion could reasonably be imposed on the National Electricity Transmission System;
(b) the time of peak National Electricity Transmission System Demand as provided by NGET under PC.A.4.2.2;
(c) the time of minimum National Electricity Transmission System Demand as provided by NGET under PC.A.4.2.2;
(d) the time of the maximum Demand (Apparent Power) at the Connection Point (as determined by the User) during the Access Period of each Transmission Interface Circuit;
(e) at a time specified by either NGET or a User insofar as such a request is reasonable.

Instead of such forecast Demand to be met at each Connection Point within each Access Group the User may (subject to PC.A.4.3.4) submit such Demand at each node on the Single Line Diagram.

In addition, the Demand in respect of each of the time periods referred to in PC.A.4.3.1 (a) to (e) in the preceding Financial Year in respect of each Connection Point within each Access Group both outturn and weather corrected shall be supplied. The “weather correction” shall normalise outturn figures to Annual ACS Conditions for times that occur during calendar week 44 through to calendar week 12 (inclusive) or Average Conditions for the period calendar weeks 13 to calendar week 43 (inclusive) and shall be performed by the relevant User on a best endeavours basis.

The submission by a User pursuant to PC.A.4.3.1 (d) shall commence in 2011 and shall then continue each year thereafter.

PC.A.4.3.2 All forecast Demand specified in PC.A.4.3.1 shall:
(a) be that remaining after any deductions reasonably considered appropriate by the User to take account of the output of all Embedded Small Power Stations and Embedded Medium Power Stations and Customer Generating Plant and imports across Embedded External Interconnections, including Embedded installations of direct current converters which do not form a DC Converter Station and Embedded DC Converter Stations and such deductions should be separately stated;
(b) include any User’s System series reactive losses but exclude any reactive compensation equipment specified in PC.A.2.4 and exclude any network susceptance specified in PC.A.2.3;
(c) be based upon Annual ACS Conditions for times that occur during calendar week 44 through to calendar week 12 (inclusive) and based on Average Conditions for calendar weeks 13 to calendar week 43 (inclusive), both corrections being made on a best endeavours basis;
(d) reflect the User’s opinion of what could reasonably be imposed on the National Electricity Transmission System.

PC.A.4.3.3 The date and time of the forecast maximum Demand (Apparent Power) at the Connection Point as specified in PC.A.4.3.1 (a) and (d) is required.

PC.A.4.3.4 Each Single Line Diagram provided under PC.A.2.2.2 shall include the Demand (Active Power) and Power Factor (values of the Power Factor at maximum and minimum continuous excitation may be given instead where more than 95% of the Demand is taken by synchronous motors) at the time of the peak National Electricity Transmission System Demand (as provided under PC.A.4.2.2) at each node on the Single Line Diagram. These Demands shall be consistent with those provided under PC.A.4.3.1(b) above for the relevant year.

PC.A.4.3.5 The Single Line Diagram must represent the User’s User System layout under the period specified in PC.A.4.3.1(b) (at the time of peak National Electricity Transmission System Demand). Should the User’s User System layout during the other times specified in PC.A.4.3.1 be planned to be materially different from the Single Line Diagram submitted to NGET pursuant to PC.A.2.2.1 the User shall in respect of such other times submit:
(i) an alternative **Single Line Diagram** that accurately reflects the revised layout and in such case shall also include appropriate associated data representing the relevant changes, or;

(ii) submit an accurate and unambiguous description of the changes to the **Single Line Diagram** previously submitted for the time of peak **National Electricity Transmission System Demand**.

Where a **User** does not submit any changes, **NGET** will assume that the **Single Line Diagram** (and associated circuit and node data) provided at the time of peak **National Electricity Transmission System Demand** will be valid for all other times. In respect of such other times, where the **User** does not submit such nodal demands at the times defined in PC.A.4.3.1(a), (c), (d) and (e), the nodal demands will be pro-rata, to be consistent with the submitted **Connection Point Demands**.

**PC.A.4.4**  
**NGET** will assemble and derive in a reasonable manner, the forecast information supplied to it under PC.A.4.2.1, PC.A.4.3.1, PC.A.4.3.4 and PC.A.4.3.5 above into a cohesive forecast and will use this in preparing **Forecast Demand** information in the **Seven Year Statement** and for use in **NGET’s Operational Planning**. If any **User** believes that the cohesive forecast **Demand** information in the **Seven Year Statement** does not reflect its assumptions on **Demand**, it should contact **NGET** to explain its concerns and may require **NGET**, on reasonable request, to discuss these forecasts. In the absence of such expressions, **NGET** will assume that **Users** concur with **NGET’s cohesive forecast**.

**PC.A.4.5 Post Fault User System Layout**

**PC.A.4.5.1** Where for the purposes of **NGET** assessing against the Licence Standards an **Access Group**, the **User** reasonably considers it appropriate that revised post fault **User System** layouts should be taken into account by **NGET**, the following information is required to be submitted by the **User**:

(i) the specified **Connection Point** assessment period (PC.A.4.3.1,(a)-(e)) that is being evaluated;

(ii) an accurate and unambiguous description of the **Transmission Interface Circuits** considered to be switched out due to a fault;

(iii) appropriate revised **Single Line Diagrams** and/or associated revised nodal **Demand** and circuit data detailing the revised **User System(s)** conditions;

(iv) where the **User’s** planned post fault action consists of more than one component, each component must be explicitly identified using the **Single Line Diagram** and associated nodal **Demand** and circuit data;

(v) the arrangements for undertaking actions (eg the time taken, automatic or manual and any other appropriate information).

The **User** must not submit any action that it does not have the capability or the intention to implement during the assessment period specified (subject to there being no further unplanned outages on the **User’s User System**).

**PC.A.4.6 Control of Demand or Reduction of Pumping Load Offered as Reserve**

<table>
<thead>
<tr>
<th>Magnitude of Demand or pumping load which is tripped</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Frequency</strong> at which tripping is initiated</td>
<td>Hz</td>
</tr>
<tr>
<td>Time duration of <strong>System Frequency</strong> below trip setting for tripping to be initiated</td>
<td>s</td>
</tr>
<tr>
<td>Time delay from trip initiation to tripping</td>
<td>s</td>
</tr>
</tbody>
</table>

**PC.A.4.7 General Demand Data**

**PC.A.4.7.1** The following information is infrequently required and should be supplied (wherever possible) when requested by **NGET**:

(a) details of any individual loads which have characteristics significantly different from the typical range of Domestic, Commercial or Industrial loads supplied;
(b) the sensitivity of the Demand (Active and Reactive Power) to variations in voltage and Frequency on the National Electricity Transmission System at the time of the peak Demand (Active Power). The sensitivity factors quoted for the Demand (Reactive Power) should relate to that given under PC.A.4.3.1 and, therefore, include any User's System series reactive losses but exclude any reactive compensation equipment specified in PC.A.2.4 and exclude any network susceptance specified in PC.A.2.3;

(c) details of any traction loads, e.g. connection phase pairs and continuous load variation with time;

(d) the average and maximum phase unbalance, in magnitude and phase angle, which the User would expect its Demand to impose on the National Electricity Transmission System;

(e) the maximum harmonic content which the User would expect its Demand to impose on the National Electricity Transmission System;

(f) details of all loads which may cause Demand fluctuations greater than those permitted under Engineering Recommendation P28, Stage 1 at a Point of Common Coupling including the Flicker Severity (Short Term) and the Flicker Severity (Long Term).
PART 2 - DETAILED PLANNING DATA

PC.A.5 GENERATING UNIT, POWER PARK MODULE, DC CONVERTER AND OTSDUW PLANT AND APPARATUS DATA

PC.A.5.1 Introduction

Directly Connected

PC.A.5.1.1 Each Generator (including those undertaking OTSDUW), with existing or proposed Power Stations directly connected, or to be directly connected, to the National Electricity Transmission System, shall provide NGET with data relating to that Plant and Apparatus, both current and forecast, as specified in PC.A.5.2, PC.A.5.3, PC.A.5.4 and PC.A.5.7 as applicable. Each DC Converter Station owner, with existing or proposed DC Converter Stations (including Generators undertaking OTSDUW which includes an OTSDUW DC Converter) directly connected, or to be directly connected, to the National Electricity Transmission System, shall provide NGET with data relating to that Plant and Apparatus, both current and forecast, as specified in PC.A.5.2 and PC.A.5.4.

Embedded

PC.A.5.1.2 Each Generator, in respect of its existing, or proposed, Embedded Large Power Stations and its Embedded Medium Power Stations subject to a Bilateral Agreement and each Network Operator in respect of Embedded Medium Power Stations not subject to a Bilateral Agreement within its System shall provide NGET with data relating to each of those Large Power Stations and Medium Power Stations, both current and forecast, as specified in PC.A.5.2, PC.A.5.3, PC.A.5.4 and PC.A.5.7 as applicable. Each DC Converter Station owner, or Network Operator in the case of an Embedded DC Converter Station not subject to a Bilateral Agreement within its System with existing or proposed DC Converter Stations shall provide NGET with data relating to each of those DC Converter Stations, both current and forecast, as specified in PC.A.5.2 and PC.A.5.4. However, no data need be supplied in relation to those Embedded Medium Power Stations or Embedded DC Converter Stations if they are connected at a voltage level below the voltage level of the Subtransmission System except in connection with an application for, or under a, CUSC Contract or unless specifically requested by NGET under PC.A.5.1.4.

PC.A.5.1.3 Each Network Operator need not submit Planning Data in respect of Embedded Small Power Stations unless required to do so under PC.A.1.2(b) or unless specifically requested under PC.A.5.1.4 below, in which case they will supply such data.

PC.A.5.1.4 PC.A.4.2.4(b) and PC.A.4.3.2(a) explained that the forecast Demand submitted by each Network Operator must be net of the output of all Medium Power Stations and Small Power Stations and Customer Generating Plant Embedded within that User’s System. In such cases (PC.A.3.1.4 also refers), the Network Operator must inform NGET of the number of such Power Stations (including the number of Generating Units) together with their summated capacity. On receipt of this data further details may be required at NGET’s discretion as follows:

(i) in the case of details required from the Network Operator for Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement and Embedded Small Power Stations and Embedded DC Converters in each case within such Network Operator’s System and Customer Generating Plant; and

(ii) in the case of details required from the Generator of Embedded Large Power Stations and Embedded Medium Power Stations subject to a Bilateral Agreement; and

(iii) in the case of details required from the DC Converter Station owner of an Embedded DC Converter or DC Converter Station subject to a Bilateral Agreement.
both current and forecast, as specified in PC.A.5.2 and PC.A.5.3. Such requirement would arise when NGET reasonably considers that the collective effect of a number of such Embedded Small Power Stations, Embedded Medium Power Stations, DC Converters and Customer Generating Plants may have a significant system effect on the National Electricity Transmission System.

PC.A.5.1.5 DPD I and DPD II

The Detailed Planning Data described in this Part 2 of the Appendix comprises both DPD I and DPD II. The required data is listed and collated in the Data Registration Code. The Users need to refer to the DRC to establish whether data referred to here is DPD I or DPD II.

PC.A.5.2 Demand

PC.A.5.2.1 For each Generating Unit which has an associated Unit Transformer, the value of the Demand supplied through this Unit Transformer when the Generating Unit is at Rated MW output is to be provided.

PC.A.5.2.2 Where the Power Station or DC Converter Station has associated Demand additional to the unit-supplied Demand of PC.A.5.2.1 which is supplied from either the National Electricity Transmission System or the Generator's User System the Generator, DC Converter Station owner or the Network Operator (in the case of Embedded Medium Power Stations not subject to a Bilateral Agreement within its System), as the case may be, shall supply forecasts for each Power Station or DC Converter Station of:

(a) the maximum Demand that, in the User's opinion, could reasonably be imposed on the National Electricity Transmission System or the Generator's User System as appropriate;

(b) the Demand at the time of the peak National Electricity Transmission System Demand

(c) the Demand at the time of minimum National Electricity Transmission System Demand.

PC.A.5.2.3 No later than calendar week 17 each year NGET shall notify each Generator in respect of its Large Power Stations and its Medium Power Stations and each DC Converter owner in respect of its DC Converter Station subject to a Bilateral Agreement and each Network Operator in respect of each Embedded Medium Power Station not subject to a Bilateral Agreement and each Embedded DC Converter Station not subject to a Bilateral Agreement within such Network Operator’s System in writing of the following, for the current Financial Year and for each of the following seven Financial Years, which will be regarded as the relevant specified days and times under PC.A.5.2.2:

(a) the date and time of the annual peak of the National Electricity Transmission System Demand at Annual ACS Conditions;

(b) the date and time of the annual minimum of the National Electricity Transmission System Demand at Average Conditions.

PC.A.5.2.4 At its discretion, NGET may also request further details of the Demand as specified in PC.A.4.6

PC.A.5.2.5 In the case of OTSDUW Plant and Apparatus the following data shall be supplied:

(a) The maximum Demand that could occur at the Interface Point and each Connection Point (in MW and MVAr);

(b) Demand at specified time of annual peak half hour of National Electricity Transmission System Demand at Annual ACS Conditions (in MW and MVAr); and

(c) Demand at specified time of annual minimum half-hour of National Electricity Transmission System Demand (in MW and MVAr).

For the avoidance of doubt, Demand data associate(d with Generators undertaking OTSDUW which utilise an OTSDUW DC Converter should supply data under PC.A.4.

PC.A.5.3 Synchronous Generating Unit and Associated Control System Data

PC.A.5.3.1 The data submitted below are not intended to constrain any Ancillary Services Agreement
PC.A.5.3.2 The following Synchronous Generating Unit and Power Station data should be supplied:

(a) Synchronous Generating Unit Parameters

- Rated terminal volts (kV)
- Rated MVA
- **Rated MW**
- Minimum Generation MW
- Short circuit ratio
  Direct axis synchronous reactance
- Direct axis transient reactance
- Direct axis sub-transient reactance
- Direct axis short-circuit transient time constant.
- Direct axis short-circuit sub-transient time constant.
- Quadrature axis synchronous reactance
- Quadrature axis sub-transient reactance
- Quadrature axis short-circuit sub-transient time constant.
- Stator time constant
- Stator leakage reactance
- Armature winding direct-current resistance.

Note: The above data item relating to armature winding direct-current resistance need only be supplied with respect to Generating Units commissioned after 1st March 1996 and in cases where, for whatever reason, the Generator or the Network Operator, as the case may be is aware of the value of the relevant parameter.

- Turbogenerator inertia constant (MWsec/MVA)
  Rated field current (amps) at Rated MW and MVAr output and at rated terminal voltage.
  Field current (amps) open circuit saturation curve for Generating Unit terminal voltages ranging from 50% to 120% of rated value in 10% steps as derived from appropriate manufacturers test certificates.

(b) Parameters for Generating Unit Step-up Transformers

- Rated MVA
  Voltage ratio
  Positive sequence reactance (at max, min, & nominal tap)
  Positive sequence resistance (at max, min, & nominal tap)
  Zero phase sequence reactance
  Tap changer range
  Tap changer step size
  Tap changer type: on load or off circuit

(c) Excitation Control System parameters
Note: The data items requested under Option 1 below may continue to be provided in relation to Generating Units on the System at 09 January 1995 (in this paragraph, the "relevant date") or the new data items set out under Option 2 may be provided. Generators or Network Operators, as the case may be, must supply the data as set out under Option 2 (and not those under Option 1) for Generating Unit excitation control systems commissioned after the relevant date, those Generating Unit excitation control systems recommissioned for any reason such as refurbishment after the relevant date and Generating Unit excitation control systems where, as a result of testing or other process, the Generator or Network Operator, as the case may be, is aware of the data items listed under Option 2 in relation to that Generating Unit.

### Option 1

**DC gain of Excitation Loop**
- Rated field voltage
- Maximum field voltage
- Minimum field voltage
- Maximum rate of change of field voltage (rising)
- Maximum rate of change of field voltage (falling)

Details of Excitation Loop described in block diagram form showing transfer functions of individual elements.

Dynamic characteristics of Over-excitation Limiter.

Dynamic characteristics of Under-excitation Limiter.

### Option 2

**Excitation System Nominal Response**
- Rated Field Voltage
- No-Load Field Voltage
- Excitation System On-Load Positive Ceiling Voltage
- Excitation System No-Load Positive Ceiling Voltage
- Excitation System No-Load Negative Ceiling Voltage

Details of Excitation System (including PSS if fitted) described in block diagram form showing transfer functions of individual elements.

Details of Over-excitation Limiter described in block diagram form showing transfer functions of individual elements.

Details of Under-excitation Limiter described in block diagram form showing transfer functions of individual elements.

The block diagrams submitted after 1 January 2009 in respect of the Excitation System (including the Over-excitation Limiter and the Under-excitation Limiter) for Generating Units with a Completion date after 1 January 2009 or subject to a Modification to the Excitation System after 1 January 2009, should have been verified as far as reasonably practicable by simulation studies as representing the expected behaviour of the system.

### (d) Governor Parameters

Incremental Droop values (in %) are required for each Generating Unit at six MW loading points (MLP1 to MLP6) as detailed in PC.A.5.5.1 (this data item needs only be provided for Large Power Stations)
Note: The data items requested under Option 1 below may continue to be provided by Generators in relation to Generating Units on the System at 09 January 1995 (in this paragraph, the “relevant date”) or they may provide the new data items set out under Option 2. Generators must supply the data as set out under Option 2 (and not those under Option 1) for Generating Unit governor control systems commissioned after the relevant date, those Generating Unit governor control systems recommissioned for any reason such as refurbishment after the relevant date and Generating Unit governor control systems where, as a result of testing or other process, the Generator is aware of the data items listed under Option 2 in relation to that Generating Unit.

Option 1

(i) Governor Parameters (for Reheat Steam Units)

- HP governor average gain MW/Hz
- Speeder motor setting range
- HP governor valve time constant
- HP governor valve opening limits
- HP governor valve rate limits
- Reheater time constant (Active Energy stored in reheater)

- IP governor average gain MW/Hz
- IP governor setting range
- IP governor valve time constant
- IP governor valve opening limits
- IP governor valve rate limits

Details of acceleration sensitive elements in HP & IP governor loop.
A governor block diagram showing transfer functions of individual elements.

(ii) Governor Parameters (for Non-Reheat Steam Units and Gas Turbine Units)

- Governor average gain
- Speeder motor setting range
- Time constant of steam or fuel governor valve
- Governor valve opening limits
- Governor valve rate limits
- Time constant of turbine
- Governor block diagram

The following data items need only be supplied for Large Power Stations:

(iii) Boiler & Steam Turbine Data

- Boiler Time Constant (Stored Active Energy) s
- HP turbine response ratio:
  - proportion of Primary Response arising from HP turbine %
- HP turbine response ratio:
  - proportion of High Frequency Response arising from HP turbine %
Option 2

(i) Governor and associated prime mover Parameters - All Generating Units

Governor Block Diagram showing transfer function of individual elements including acceleration sensitive elements.

Governor Time Constant (in seconds)

Speeder Motor Setting Range (%)

Average Gain (MW/Hz)

Governor Deadband (this data item need only be provided for Large Power Stations)

- Maximum Setting $\pm$ Hz
- Normal Setting $\pm$ Hz
- Minimum Setting $\pm$ Hz

Where the Generating Unit governor does not have a selectable deadband facility, then the actual value of the deadband need only be provided.

The block diagrams submitted after 1 January 2009 in respect of the Governor system for Generating Units with a Completion date after 1 January 2009 or subject to a Modification to the governor system after 1 January 2009, should have been verified as far as reasonably practicable by simulation studies as representing the expected behaviour of the system.

(ii) Governor and associated prime mover Parameters - Steam Units

HP Valve Time Constant (in seconds)

HP Valve Opening Limits (%)

HP Valve Opening Rate Limits (%/second)

HP Valve Closing Rate Limits (%/second)

HP Turbine Time Constant (in seconds)

IP Valve Time Constant (in seconds)

IP Valve Opening Limits (%)

IP Valve Opening Rate Limits (%/second)

IP Valve Closing Rate Limits (%/second)

IP Turbine Time Constant (in seconds)

LP Valve Time Constant (in seconds)

LP Valve Opening Limits (%)

LP Valve Opening Rate Limits (%/second)

LP Valve Closing Rate Limits (%/second)

LP Turbine Time Constant (in seconds)

Reheater Time Constant (in seconds)

Boiler Time Constant (in seconds)

HP Power Fraction (%)
IP Power Fraction (%)

(iii) Governor and associated prime mover Parameters - Gas Turbine Units
  Inlet Guide Vane Time Constant (in seconds)
  Inlet Guide Vane Opening Limits (%)
  Inlet Guide Vane Opening Rate Limits (%/second)
  Inlet Guide Vane Closing Rate Limits (%/second)
  Fuel Valve Constant (in seconds)
  Fuel Valve Opening Limits (%)
  Fuel Valve Opening Rate Limits (%/second)
  Fuel Valve Closing Rate Limits (%/second)
  Waste Heat Recovery Boiler Time Constant (in seconds)

(iv) Governor and associated prime mover Parameters - Hydro Generating Units
  Guide Vane Actuator Time Constant (in seconds)
  Guide Vane Opening Limits (%)
  Guide Vane Opening Rate Limits (%/second)
  Guide Vane Closing Rate Limits (%/second)
  Water Time Constant (in seconds)

[End of Option 2]

(e) Unit Control Options
  The following data items need only be supplied with respect to Large Power Stations:
    Maximum Droop %
    Normal Droop %
    Minimum Droop %
    Maximum Frequency deadband ±Hz
    Normal Frequency deadband ±Hz
    Minimum Frequency deadband ±Hz
    Maximum output deadband ±MW
    Normal output deadband ±MW
    Minimum output deadband ±MW

  Frequency settings between which Unit Load Controller Droop applies:
    - Maximum Hz
    - Normal Hz
    - Minimum Hz

  State if sustained response is normally selected.

(f) Plant Flexibility Performance
  The following data items need only be supplied with respect to Large Power Stations, and
  should be provided with respect to each Genset:
# Run-up rate to Registered Capacity,
# Run-down rate from Registered Capacity,
# Synchronising Generation,
  Regulating range
  Load rejection capability while still Synchronised and able to supply Load.

Data items marked with a hash (#) should be applicable to a Genset which has been Shutdown for 48 hours.

* Data items marked with an asterisk are already requested under part 1, PC.A.3.3.1, to facilitate an early assessment by NGET as to whether detailed stability studies will be required before an offer of terms for a CUSC Contract can be made. Such data items have been repeated here merely for completeness and need not, of course, be resubmitted unless their values, known or estimated, have changed.

(g) Generating Unit Mechanical Parameters

It is occasionally necessary for NGET to assess the interaction between the Total System and the mechanical components of Generating Units. For Generating Units with a Completion Date on or after 01 April 2015, the following data items should be supplied:

  - The number of turbine generator masses.
  - Diagram showing the Inertia and parameters for each turbine generator mass (kgm²) and Stiffness constants and parameters between each turbine generator mass for the complete drive train (Nm/rad).
  - Number of poles.
  - Relative power applied to different parts of the turbine (%).
  - Torsional mode frequencies (Hz).
  - Modal damping decrement factors for the different mechanical modes.

PC.A.5.4 Non-Synchronous Generating Unit and Associated Control System Data

PC.A.5.4.1 The data submitted below are not intended to constrain any Ancillary Services Agreement

PC.A.5.4.2 The following Power Park Unit, Power Park Module and Power Station data should be supplied in the case of a Power Park Module not connected to the Total System by a DC Converter (and in the case of PC.A.5.4.2(f) any OTSUA):

Where a Manufacturer’s Data & Performance Report exists in respect of the model of the Power Park Unit, the User may subject to NGET’s agreement, opt to reference the Manufacturer’s Data & Performance Report as an alternative to the provision of data in accordance with PC.A.5.4.2 except for:

1. the section marked thus # at sub paragraph (b); and
2. all of the harmonic and flicker parameters required under sub paragraph (h); and
3. all of the site specific model parameters relating to the voltage or frequency control systems required under sub paragraphs (d) and (e),

which must be provided by the User in addition to the Manufacturer’s Data & Performance Report reference.

(a) Power Park Unit model
A mathematical model of each type of **Power Park Unit** capable of representing its transient and dynamic behaviour under both small and large disturbance conditions. The model shall include non-linear effects and represent all equipment relevant to the dynamic performance of the **Power Park Unit** as agreed with NGET. The model shall be suitable for the study of balanced, root mean square, positive phase sequence time-domain behaviour, excluding the effects of electromagnetic transients, harmonic and sub-harmonic frequencies.

The model shall accurately represent the overall performance of the **Power Park Unit** over its entire operating range including that which is inherent to the **Power Park Unit** and that which is achieved by use of supplementary control systems providing either continuous or stepwise control. Model resolution should be sufficient to accurately represent **Power Park Unit** behaviour both in response to operation of **Transmission System** protection and in the context of longer-term simulations.

The overall structure of the model shall include:

(i) any supplementary control signal modules not covered by (c), (d) and (e) below.

(ii) any blocking, deblocking and protective trip features that are part of the **Power Park Unit** (e.g. “crowbar”).

(iii) any other information required to model the **Power Park Unit** behaviour to meet the model functional requirement described above.

The model shall be submitted in the form of a transfer function block diagram and may be accompanied by dynamic and algebraic equations.

This model shall display all the transfer functions and their parameter values, any non wind-up logic, signal limits and non-linearities.

The submitted **Power Park Unit** model and the supplementary control signal module models covered by (c), (d) and (e) below shall have been validated and this shall be confirmed by the **Generator**. The validation shall be based on comparing the submitted model simulation results against measured test results. Validation evidence shall also be submitted and this shall include the simulation and measured test results. The latter shall include appropriate short-circuit tests. In the case of an **Embedded Medium Power Station** not subject to a **Bilateral Agreement** the **Network Operator** will provide NGET with the validation evidence if requested by NGET. The validation of the supplementary control signal module models covered by (c), (d) and (e) below applies only to a **Power Park Module** with a **Completion Date** after 1 January 2009.

(b) **Power Park Unit** parameters

* Rated MVA

* **Rated MW**

* Rated terminal voltage

* Average site air density (kg/m$^3$), maximum site air density (kg/m$^3$) and minimum site air density (kg/m$^3$) for the year

  Year for which the air density is submitted

  Number of pole pairs

  Blade swept area (m$^2$)

  Gear box ratio

  Mechanical drive train

  For each **Power Park Unit**, details of the parameters of the drive train represented as an equivalent two mass model should be provided. This model should accurately represent the behaviour of the complete drive train for the purposes of power system analysis studies and should include the following data items:-

  Equivalent inertia constant (MWsec/MVA) of the first mass (e.g. wind turbine rotor
and blades) at minimum, synchronous and rated speeds.
Equivalent inertia constant (MWsec/MVA) of the second mass (e.g. generator rotor) at minimum, synchronous and rated speeds.
Equivalent shaft stiffness between the two masses (Nm/electrical radian).

Additionally, for Power Park Units that are induction generators (e.g. squirrel cage, doubly-fed) driven by wind turbines:
* Stator resistance
* Stator reactance
* Magnetising reactance.
* Rotor resistance (at starting)
* Rotor resistance (at rated running)
* Rotor reactance (at starting)
* Rotor reactance (at rated running)

Additionally for doubly-fed induction generators only:
The generator rotor speed range (minimum and maximum speeds in RPM)
The optimum generator rotor speed versus wind speed submitted in tabular format
Power converter rating (MVA)

The rotor power coefficient ($C_p$) versus tip speed ratio ($\lambda$) curves for a range of blade angles (where applicable) together with the corresponding values submitted in tabular format. The tip speed ratio ($\lambda$) is defined as $\Omega R/U$ where $\Omega$ is the angular velocity of the rotor, $R$ is the radius of the wind turbine rotor and $U$ is the wind speed.

The electrical power output versus generator rotor speed for a range of wind speeds over the entire operating range of the Power Park Unit, together with the corresponding values submitted in tabular format.

The blade angle versus wind speed curve together with the corresponding values submitted in tabular format.

The electrical power output versus wind speed over the entire operating range of the Power Park Unit, together with the corresponding values submitted in tabular format.

Transfer function block diagram, including parameters and description of the operation of the power electronic converter and fault ride through capability (where applicable).

For a Power Park Unit consisting of a synchronous machine in combination with a back to back DC Converter, or for a Power Park Unit not driven by a wind turbine, the data to be supplied shall be agreed with NGET in accordance with PC.A.7.

(c) Torque / speed and blade angle control systems and parameters

For the Power Park Unit, details of the torque / speed controller and blade angle controller in the case of a wind turbine and power limitation functions (where applicable) described in block diagram form showing transfer functions and parameters of individual elements.

(d) Voltage/Reactive Power/Power Factor control system parameters

For the Power Park Unit and Power Park Module details of voltage/Reactive Power/Power Factor controller (and PSS if fitted) described in block diagram form showing transfer functions and parameters of individual elements.

(e) Frequency control system parameters
For the Power Park Unit and Power Park Module details of the Frequency controller described in block diagram form showing transfer functions and parameters of individual elements.

(f) Protection
Details of settings for the following Protection relays (to include): Under Frequency, over Frequency, under voltage, over voltage, rotor over current, stator over current, high wind speed shut down level.

(g) Complete Power Park Unit model, parameters and controls
An alternative to PC.A.5.4.2 (a), (b), (c), (d), (e) and (f), is the submission of a single complete model that consists of the full information required under PC.A.5.4.2 (a), (b), (c), (d), (e) and (f) provided that all the information required under PC.A.5.4.2 (a), (b), (c), (d), (e) and (f) individually is clearly identifiable.

(h) Harmonic and flicker parameters
When connecting a Power Park Module, it is necessary for NGET to evaluate the production of flicker and harmonics on NGET and User's Systems. At NGET's reasonable request, the User (a Network Operator in the case of an Embedded Power Park Module not subject to a Bilateral Agreement) is required to submit the following data (as defined in IEC 61400-21 (2001)) for each Power Park Unit:-

- Flicker coefficient for continuous operation.
- Flicker step factor.
- Number of switching operations in a 10 minute window.
- Number of switching operations in a 2 hour window.
- Voltage change factor.

Current Injection at each harmonic for each Power Park Unit and for each Power Park Module

* Data items marked with an asterisk are already requested under part 1, PC.A.3.3.1, to facilitate an early assessment by NGET as to whether detailed stability studies will be required before an offer of terms for a CUSC Contract can be made. Such data items have been repeated here merely for completeness and need not, of course, be resubmitted unless their values, known or estimated, have changed.

PC.A.5.4.3 DC Converter
PC.A.5.4.3.1 For a DC Converter at a DC Converter Station or a Power Park Module connected to the Total System by a DC Converter (or in the case of OTSUA which includes an OTSDUW DC Converter) the following information for each DC Converter and DC Network should be supplied:

(a) DC Converter parameters
* Rated MW per pole for transfer in each direction;
* DC Converter type (i.e. current or voltage source);
* Number of poles and pole arrangement;
* Rated DC voltage/pole (kV);
* Return path arrangement;

(b) DC Converter transformer parameters
Rated MVA
Nominal primary voltage (kV);
Nominal secondary (converter-side) voltage(s) (kV);
Winding and earthing arrangement;
Positive phase sequence reactance at minimum, maximum and nominal tap;
Positive phase sequence resistance at minimum, maximum and nominal tap;
Zero phase sequence reactance;
Tap-changer range in %;
number of tap-changer steps;

(c) **DC Network** parameters

- Rated DC voltage per pole;
- Rated DC current per pole;
- Single line diagram of the complete DC Network;
- Details of the complete DC Network, including resistance, inductance and capacitance of all DC cables and/or DC lines;
- Details of any DC reactors (including DC reactor resistance), DC capacitors and/or DC-side filters that form part of the DC Network;

(d) **AC filter reactive compensation equipment parameters**

Note: The data provided pursuant to this paragraph must not include any contribution from reactive compensation plant owned or operated by NGET.

- Total number of AC filter banks.
- Type of equipment (e.g. fixed or variable)
- Single line diagram of filter arrangement and connections;

**Reactive Power** rating for each AC filter bank, capacitor bank or operating range of each item of reactive compensation equipment, at rated voltage;

Performance chart showing Reactive Power capability of the DC Converter, as a function of MW transfer, with all filters and reactive compensation plant, belonging to the DC Converter Station working correctly.

Note: Details in PC.A.5.4.3.1 are required for each DC Converter connected to the DC Network, unless each is identical or where the data has already been submitted for an identical DC Converter at another Connection Point.

Note: For a Power Park Module connected to the Grid Entry point or (User System Entry Point if Embedded) by a DC Converter the equivalent inertia and fault infeed at the Power Park Unit should be given.

PC.A.5.4.3.2 The following data is required by NGET to represent DC Converters and associated DC Networks (and including OTSUA which includes an OTSDUW DC Converter) in dynamic power system simulations, in which the AC power system is typically represented by a positive sequence equivalent. DC Converters are represented by simplified equations and are not modelled to switching device level.

(i) Static $V_{dc}^{-1} P_{dc}$ (DC voltage - DC current) characteristics, for both the rectifier and inverter modes for a current source converter. Static $V_{dc} P_{dc}$ (DC voltage - DC power) characteristics, for both the rectifier and inverter modes for a voltage source converter.

Transfer function block diagram including parameters representation of the control systems of each DC Converter and of the DC Converter Station, for both the rectifier and inverter modes. A suitable model would feature the DC Converter firing angle as the output variable.
(ii) Transfer function block diagram representation including parameters of the DC Converter transformer tap changer control systems, including time delays.

(iii) Transfer function block diagram representation including parameters of AC filter and reactive compensation equipment control systems, including any time delays.

(iv) Transfer function block diagram representation including parameters of any Frequency and/or load control systems.

(v) Transfer function block diagram representation including parameters of any small signal modulation controls such as power oscillation damping controls or sub-synchronous oscillation damping controls, that have not been submitted as part of the above control system data.

(vi) Transfer block diagram representation of the Reactive Power control at converter ends for a voltage source converter.
**Plant Flexibility Performance**

**PC.A.5.4.3.3** The following information on plant flexibility and performance should be supplied (and also in respect of OTSUA which includes an OTSDUW DC Converter):

(i) Nominal and maximum (emergency) loading rate with the DC Converter in rectifier mode.

(ii) Nominal and maximum (emergency) loading rate with the DC Converter in inverter mode.

(iii) Maximum recovery time, to 90% of pre-fault loading, following an AC system fault or severe voltage depression.

(iv) Maximum recovery time, to 90% of pre-fault loading, following a transient DC Network fault.

**Harmonic Assessment Information**

**PC.A.5.4.3.4** DC Converter owners shall provide such additional further information as required by NGET in order that compliance with CC.6.1.5 can be demonstrated.

* Data items marked with an asterisk are already requested under part 1, PC.A.3.3.1, to facilitate an early assessment by NGET as to whether detailed stability studies will be required before an offer of terms for a CUSC Contract can be made. Such data items have been repeated here merely for completeness and need not, of course, be resubmitted unless their values, known or estimated, have changed.

**PC.A.5.5** Response Data For Frequency Changes

The information detailed below is required to describe the actual frequency response capability profile as illustrated in Figure CC.A.3.1 of the Connection Conditions, and need only be provided for each:

(i) Genset at Large Power Stations; and

(ii) Generating Unit, Power Park Module or CCGT Module at a Medium Power Station or DC Converter Station that has agreed to provide Frequency response in accordance with a CUSC Contract.

In the case of (ii) above for the rest of this PC.A.5.5 where reference is made to Gensets, it shall include such Generating Units, CCGT Modules, Power Park Modules and DC Converters as appropriate, but excludes OTSDUW Plant and Apparatus utilising OTSDUW DC Converters.

In this PC.A.5.5, for a CCGT Module with more than one Generating Unit, the phrase Minimum Generation applies to the entire CCGT Module operating with all Generating Units Synchronised to the System. Similarly for a Power Park Module with more than one Power Park Unit, the phrase Minimum Generation applies to the entire Power Park Module operating with all Power Park Units Synchronised to the System.

**PC.A.5.5.1** MW Loading Points At Which Data Is Required

Response values are required at six MW loading points (MLP1 to MLP6) for each Genset. Primary and Secondary Response values need not be provided for MW loading points which are below Minimum Generation. MLP1 to MLP6 must be provided to the nearest MW.

Prior to the Genset being first Synchronised, the MW loading points must take the following values:

<table>
<thead>
<tr>
<th>MLP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLP1</td>
<td>Designed Minimum Operating Level</td>
</tr>
<tr>
<td>MLP2</td>
<td>Minimum Generation</td>
</tr>
<tr>
<td>MLP3</td>
<td>70% of Registered Capacity</td>
</tr>
<tr>
<td>MLP4</td>
<td>80% of Registered Capacity</td>
</tr>
<tr>
<td>MLP5</td>
<td>95% of Registered Capacity</td>
</tr>
<tr>
<td>MLP6</td>
<td>Registered Capacity</td>
</tr>
</tbody>
</table>
When data is provided after the Genset is first Synchronised, the MW loading points may take any value between Designed Minimum Operating Level and Registered Capacity but the value of the Designed Minimum Operating Level must still be provided if it does not form one of the MW loading points.

PC.A.5.5.2 Primary And Secondary Response To Frequency Fall

Primary and Secondary Response values for a -0.5Hz ramp are required at six MW loading points (MLP1 to MLP6) as detailed above.

PC.A.5.5.3 High Frequency Response To Frequency Rise

High Frequency Response values for a +0.5Hz ramp are required at six MW loading points (MLP1 to MLP6) as detailed above.

PC.A.5.6 Mothballed Generating Unit Mothballed Power Park Module Or Mothballed DC Converter At A DC Converter Station And Alternative Fuel Information

Data identified under this section PC.A.5.6 must be submitted as required under PC.A.1.2 and at NGET’s reasonable request.

In the case of Embedded Medium Power Stations not subject to a Bilateral Agreement and Embedded DC Converter Stations not subject to a Bilateral Agreement, upon request from NGET each Network Operator shall provide the information required in PC.A.5.6.1, PC.A.5.6.2, PC.A.5.6.3 and PC.A.5.6.4 on respect of such Embedded Medium Power Stations and Embedded DC Converters Stations with their System.

PC.A.5.6.1 Mothballed Generating Unit Information

Generators and DC Converter Station owners must supply with respect to each Mothballed Generating Unit, Mothballed Power Park Module or Mothballed DC Converter at a DC Converter Station the estimated MW output which could be returned to service within the following time periods from the time that a decision to return was made:

- < 1 month;
- 1-2 months;
- 2-3 months;
- 3-6 months;
- 6-12 months; and
- >12 months.

The return to service time should be determined in accordance with Good Industry Practice assuming normal working arrangements and normal plant procurement lead times. The MW output values should be the incremental values made available in each time period as further described in the DRC.

PC.A.5.6.2 Generators and DC Converter Station owners must also notify NGET of any significant factors which may prevent the Mothballed Generating Unit, Mothballed Power Park Module or Mothballed DC Converter at a DC Converter Station achieving the estimated values provided under PC.A.5.6.1 above, excluding factors relating to Transmission Entry Capacity.

PC.A.5.6.3 Alternative Fuel Information

The following data items must be supplied with respect to each Generating Unit whose main fuel is gas.

For each alternative fuel type (if facility installed):

(a) Alternative fuel type e.g. oil distillate, alternative gas supply

(b) For the changeover from main to alternative fuel:

- Time to carry out off-line and on-line fuel changeover (minutes).
- Maximum output following off-line and on-line changeover (MW).
- Maximum output during on-line fuel changeover (MW).
- Maximum operating time at full load assuming typical and maximum possible stock levels (hours).
- Maximum rate of replacement of depleted stocks (MWh electrical/day) on the basis of Good Industry Practice.
- Is changeover to alternative fuel used in normal operating arrangements?
- Number of successful changeovers carried out in the last NGET Financial Year (choice of 0, 1-5, 6-10, 11-20, >20).

(c) For the changeover back to main fuel:
- Time to carry out off-line and on-line fuel changeover (minutes).
- Maximum output during on-line fuel changeover (MW).

PC.A.5.6.4 Generators must also notify NGET of any significant factors and their effects which may prevent the use of alternative fuels achieving the estimated values provided under PC.A.5.6.3 above (e.g. emissions limits, distilled water stocks etc.)

PC.A.5.7 Black Start Related Information

Data identified under this section PC.A.5.7 must be submitted as required under PC.A.1.2. This information may also be requested by NGET during a Black Start and should be provided by Generators where reasonably possible. Generators in this section PC.A.5.7 means Generators only in respect of their Large Power Stations.

The following data items/text must be supplied, from each Generator to NGET, with respect to each BM Unit at a Large Power Station (excluding the Generating Units that are contracted to provide Black Start Capability, Power Park Modules or Generating Units with an Intermittent Power Source);

(a) Expected time for each BM Unit to be Synchronised following a Total Shutdown or Partial Shutdown. The assessment should include the Power Station’s ability to re-synchronise all BM Units, if all were running immediately prior to the Total Shutdown or Partial Shutdown. Additionally this should highlight any specific issues (i.e. those that would impact on the BM Unit’s time to be Synchronised) that may arise, as time progresses without external supplies being restored.

(b) Block Loading Capability. This should be provided in either graphical or tabular format showing the estimated block loading capability from 0MW to Registered Capacity. Any particular ‘hold’ points should also be identified. The data of each BM Unit should be provided for the condition of a ‘hot’ unit that was Synchronised just prior to the Total Shutdown or Partial Shutdown and also for the condition of a ‘cold’ unit. The block loading assessment should be done against a frequency variation of 49.5Hz – 50.5Hz.

PC.A.6 USERS’ SYSTEM DATA

PC.A.6.1 Introduction

PC.A.6.1.1 Each User, whether connected directly via an existing Connection Point to the National Electricity Transmission System or seeking such a direct connection, or providing terms for connection of an Offshore Transmission System to its User System to NGET or undertaking OTSDUW, shall provide NGET with data on its User System or OTSDUW Plant and Apparatus which relates to the Connection Site containing the Connection Point (or Interface Points or Connection Points in the case of OTSUA) both current and forecast, as specified in PC.A.6.2 to PC.A.6.6.

PC.A.6.1.2 Each User must reflect the system effect at the Connection Site(s) of any third party Embedded within its User System whether existing or proposed.
PC.A.6.1.3 PC.A.6.2, and PC.A.6.4 to PC.A.6.6 consist of data which is only to be supplied to NGET at NGET’s reasonable request. In the event that NGET identifies a reason for requiring this data, NGET shall write to the relevant User(s), requesting the data, and explaining the reasons for the request. If the User(s) wishes, NGET shall also arrange a meeting at which the request for data can be discussed, with the objective of identifying the best way in which NGET’s requirements can be met.

PC.A.6.2 Transient Overvoltage Assessment Data

PC.A.6.2.1 It is occasionally necessary for NGET to undertake transient overvoltage assessments (e.g. capacitor switching transients, switchgear transient recovery voltages, etc). At NGET’s reasonable request, each User is required to provide the following data with respect to the Connection Site (and in the case of OTSUA, Interface Points and Connection Points), current and forecast, together with a Single Line Diagram where not already supplied under PC.A.2.2.1, as follows:

(a) busbar layout plan(s), including dimensions and geometry showing positioning of any current and voltage transformers, through bushings, support insulators, disconnectors, circuit breakers, surge arresters, etc. Electrical parameters of any associated current and voltage transformers, stray capacitances of wall bushings and support insulators, and grading capacitances of circuit breakers;

(b) Electrical parameters and physical construction details of lines and cables connected at that busbar. Electrical parameters of all plant e.g., transformers (including neutral earthing impedance or zig-zag transformers, if any), series reactors and shunt compensation equipment connected at that busbar (or to the tertiary of a transformer) or by lines or cables to that busbar;

(c) Basic insulation levels (BIL) of all Apparatus connected directly, by lines or by cables to the busbar;

(d) characteristics of overvoltage Protection devices at the busbar and at the termination points of all lines, and all cables connected to the busbar;

(e) fault levels at the lower voltage terminals of each transformer connected directly or indirectly to the National Electricity Transmission System (including OTSUA at each Interface Point and Connection Point) without intermediate transformation;

(f) the following data is required on all transformers operating at Supergrid Voltage throughout Great Britain and, in Scotland and Offshore, also at 132kV (including OTSUA): three or five limb cores or single phase units to be specified, and operating peak flux density at nominal voltage;

(g) an indication of which items of equipment may be out of service simultaneously during Planned Outage conditions.

PC.A.6.3 User’s Protection Data

PC.A.6.3.1 Protection

The following information is required which relates only to Protection equipment which can trip or inter-trip or close any Connection Point circuit-breaker or any Transmission circuit-breaker (or in the case of OTSUA, any Interface Point or Connection Point circuit breaker). This information need only be supplied once, in accordance with the timing requirements set out in PC.A.1.4(b), and need not be supplied on a routine annual basis thereafter, although NGET should be notified if any of the information changes

(a) a full description, including estimated settings, for all relays and Protection systems installed or to be installed on the User’s System;

(b) a full description of any auto-reclose facilities installed or to be installed on the User’s System, including type and time delays;

(c) a full description, including estimated settings, for all relays and Protection systems or to be installed on the generator, generator transformer, Station Transformer and their associated connections;
(d) for Generating Units (other than Power Park Units) or Power Park Modules or DC Converters at a DC Converter Station or OTSDUW Plant and Apparatus having (or intended to have) a circuit breaker at the generator terminal voltage, clearance times for electrical faults within the Generating Unit (other than a Power Park Unit) or Power Park Module zone, or within the OTSDUW Plant and Apparatus;

(e) the most probable fault clearance time for electrical faults on any part of the User’s System directly connected to the National Electricity Transmission System including OTSDUW Plant and Apparatus; and

(f) in the case of OTSDUW Plant and Apparatus, synchronisation facilities and delayed auto reclose sequence schedules (where applicable).

PC.A.6.4 Harmonic Studies

PC.A.6.4.1 It is occasionally necessary for NGET to evaluate the production/magnification of harmonic distortion on NGET and User’s Systems (and OTSUA), especially when NGET is connecting equipment such as capacitor banks. At NGET’s reasonable request, each User is required to submit data with respect to the Connection Site (and in the case of OTSUA, each Interface Point and Connection Point), current and forecast, and where not already supplied under PC.A.2.2.4 and PC.A.2.2.5, as follows:

PC.A.6.4.2 Overhead lines and underground cable circuits of the User’s Subtransmission System must be differentiated and the following data provided separately for each type:

- Positive phase sequence resistance;
- Positive phase sequence reactance;
- Positive phase sequence susceptance;

and for all transformers connecting the User’s Subtransmission System and OTSDUW Plant and Apparatus to a lower voltage:

- Rated MVA;
- Voltage Ratio;
- Positive phase sequence resistance;
- Positive phase sequence reactance;

and at the lower voltage points of those connecting transformers:

- Equivalent positive phase sequence susceptance;
- Connection voltage and MVAr rating of any capacitor bank and component design parameters if configured as a filter;
- Equivalent positive phase sequence interconnection impedance with other lower voltage points;
- The minimum and maximum Demand (both MW and MVAr) that could occur;
- Harmonic current injection sources in Amps at the Connection voltage points. Where the harmonic injection current comes from a diverse group of sources, the equivalent contribution may be established from appropriate measurements;
- Details of traction loads, eg connection phase pairs, continuous variation with time, etc;
- An indication of which items of equipment may be out of service simultaneously during Planned Outage conditions.

PC.A.6.5 Voltage Assessment Studies

It is occasionally necessary for NGET to undertake detailed voltage assessment studies (e.g., to examine potential voltage instability, voltage control co-ordination or to calculate voltage step changes). At NGET’s reasonable request, each User is required to submit the following data where not already supplied under PC.A.2.2.4 and PC.A.2.2.5:

For all circuits of the User’s Subtransmission System (and any OTSUA):-
Positive Phase Sequence Reactance;
Positive Phase Sequence Resistance;
Positive Phase Sequence Susceptance;
MVAr rating of any reactive compensation equipment;

and for all transformers connecting the User’s Subtransmission System to a lower voltage (and any OTSUA):

Rated MVA;
Voltage Ratio;
Positive phase sequence resistance;
Positive Phase sequence reactance;
Tap-changer range;
Number of tap steps;
Tap-changer type: on-load or off-circuit;
AVC/tap-changer time delay to first tap movement;
AVC/tap-changer inter-tap time delay;

and at the lower voltage points of those connecting transformers (and any OTSUA):-

Equivalent positive phase sequence susceptance;
MVAr rating of any reactive compensation equipment;
Equivalent positive phase sequence interconnection impedance with other lower voltage points;
The maximum Demand (both MW and MVAr) that could occur;
Estimate of voltage insensitive (constant power) load content in % of total load at both winter peak and 75% off-peak load conditions.

PC.A.6.6 Short Circuit Analysis

PC.A.6.6.1 Where prospective short-circuit currents on equipment owned, operated or managed by NGET are greater than 90% of the equipment rating, and in NGET’s reasonable opinion more accurate calculations of short-circuit currents are required, then at NGET’s request each User is required to submit data with respect to the Connection Site (and in the case of OTSUA, each Interface Point and Connection Point), current and forecast, and where not already supplied under PC.A.2.2.4 and PC.A.2.2.5, as follows:

PC.A.6.6.2 For all circuits of the User’s Subtransmission System (and any OTSUA):

Positive phase sequence resistance;
Positive phase sequence reactance;
Positive phase sequence susceptance;
Zero phase sequence resistance (both self and mutuals);
Zero phase sequence reactance (both self and mutuals);
Zero phase sequence susceptance (both self and mutuals);

and for all transformers connecting the User’s Subtransmission System to a lower voltage (and any OTSUA):

Rated MVA;
Voltage Ratio;
Positive phase sequence resistance (at max, min and nominal tap);
Positive Phase sequence reactance (at max, min and nominal tap);
Zero phase sequence reactance (at nominal tap);
Tap changer range;
Earthing method: direct, resistance or reactance;
Impedance if not directly earthed;
and at the lower voltage points of those connecting transformers (and any OTSUA):

The maximum Demand (in MW and MVar) that could occur;

Short-circuit infeed data in accordance with PC.A.2.5.6 unless the User’s lower voltage network runs in parallel with the User’s Subtransmission System, when to prevent double counting in each node infeed data, a π equivalent comprising the data items of PC.A.2.5.6 for each node together with the positive phase sequence interconnection impedance between the nodes shall be submitted.

PC.A.7 ADDITIONAL DATA FOR NEW TYPES OF POWER STATIONS, DC CONVERTER STATIONS, OTSUA AND CONFIGURATIONS

Notwithstanding the Standard Planning Data and Detailed Planning Data set out in this Appendix, as new types of configurations and operating arrangements of Power Stations, DC Converter Stations and OTSUA emerge in future, NGET may reasonably require additional data to represent correctly the performance of such Plant and Apparatus on the System, where the present data submissions would prove insufficient for the purpose of producing meaningful System studies for the relevant parties.
PART 3 - DETAILED PLANNING DATA

PC.A.8 To allow a User to model the National Electricity Transmission System, NGET will provide, upon request, the following Network Data to Users, calculated in accordance with Good Industry Practice:

To allow a User to assess undertaking OTSDUW and except where provided for in Appendix F, NGET will provide upon request the following Network Data to Users, calculated in accordance with Good Industry Practice:

PC.A.8.1 Single Point of Connection

For a Single Point of Connection to a User's System (and OTSUA), as an equivalent 400kV or 275kV source and also in Scotland and Offshore as an equivalent 132kV source, the data (as at the HV side of the Point of Connection (and in the case of OTSUA, each Interface Point and Connection Point) reflecting data given to NGET by Users) will be given to a User as follows:

The data items listed under the following parts of PC.A.8.3:

(a)  (i), (ii), (iii), (iv), (v) and (vi)
and the data items shall be provided in accordance with the detailed provisions of PC.A.8.3 (b) - (e).

PC.A.8.2 Multiple Point of Connection

For a Multiple Point of Connection to a User's System equivalents suitable for use in loadflow and fault level analysis shall be provided. These equivalents will normally be in the form of a π model or extension with a source (or demand for a loadflow equivalent) at each node and a linking impedance. The boundary nodes for the equivalent shall be either at the Connection Point (and in the case of OTSDUW, each Interface Point and Connection Point) or (where NGET agrees) at suitable nodes (the nodes to be agreed with the User) within the National Electricity Transmission System. The data at the Connection Point (and in the case of OTSDUW, each Interface Point and Connection Point) will be given to a User as follows:

The data items listed under the following parts of PC.A.8.3:-

(a)  (i), (ii), (iv), (v), (vi), (vii), (viii), (ix), (x) and (xi)
and the data items shall be provided in accordance with the detailed provisions of PC.A.8.3 (b) - (e).

When an equivalent of this form is not required NGET will not provide the data items listed under the following parts of PC.A.8.3:-

(a)  (vii), (viii), (ix), (x) and (xi)

PC.A.8.3 Data Items

(a)  The following is a list of data utilised in this part of the PC. It also contains rules on the data which generally apply.

(i)  symmetrical three-phase short circuit current infeed at the instant of fault from the National Electricity Transmission System, \(I_1^*\);

(ii) symmetrical three-phase short circuit current from the National Electricity Transmission System after the subtransient fault current contribution has substantially decayed, \(I_1^*\);

(iii) the zero sequence source resistance and reactance values at the Point of Connection (and in case of OTSUA, each Interface Point and Connection Point), consistent with the maximum infeed below;

(iv) the pre-fault voltage magnitude at which the maximum fault currents were calculated;

(v)  the positive sequence X/R ratio at the instant of fault;

(vi) the negative sequence resistance and reactance values of the National Electricity
Transmission System seen from the (Point of Connection and in case of OTSUA, each Interface Point and Connection Point), if substantially different from the values of positive sequence resistance and reactance which would be derived from the data provided above;

(vii) the initial positive sequence resistance and reactance values of the two (or more) sources and the linking impedance(s) derived from a fault study constituting the \( \pi \) equivalent and evaluated without the User network and load and where appropriate without elements of the National Electricity Transmission System between the User network and agreed boundary nodes (and in case of OTSUA, each Interface Point and Connection Point);

(viii) the positive sequence resistance and reactance values of the two (or more) sources and the linking impedance(s) derived from a fault study, considering the short circuit current contributions after the subtransient fault current contribution has substantially decayed, constituting the \( \pi \) equivalent and evaluated without the User network and load, and where appropriate without elements of the National Electricity Transmission System between the User network and agreed boundary nodes (and in case of OTSUA, each Interface Point and Connection Point);

(ix) the corresponding zero sequence impedance values of the \( \pi \) equivalent produced for use in fault level analysis;

(x) the Demand and voltage at the boundary nodes and the positive sequence resistance and reactance values of the linking impedance(s) derived from a loadflow study considering National Electricity Transmission System peak Demand constituting the \( \pi \) loadflow equivalent; and,

(xi) where the agreed boundary nodes are not at a Connection Point (and in case of OTSUA, Interface Point or Connection Point), the positive sequence and zero sequence impedances of all elements of the National Electricity Transmission System between the User network and agreed boundary nodes that are not included in the equivalent (and in case of OTSUA, each Interface Point and Connection Point).

(b) To enable the model to be constructed, NGET will provide data based on the following conditions.

(c) The initial symmetrical three phase short circuit current and the transient period three phase short circuit current will normally be derived from the fixed impedance studies. The latter value should be taken as applying at times of 120ms and longer. Shorter values may be interpolated using a value for the subtransient time constant of 40ms. These fault currents will be obtained from a full System study based on load flow analysis that takes into account any existing flow across the point of connection being considered.

(d) Since the equivalent will be produced for the 400kV or 275kV and also in Scotland and Offshore132kV parts of the National Electricity Transmission System NGET will provide the appropriate supergrid transformer data.

(e) The positive sequence X/R ratio and the zero sequence impedance value will correspond to the NGET source network only, that is with the section of network if any with which the equivalent is to be used excluded. These impedance values will be derived from the condition when all Generating Units are Synchronised to the National Electricity Transmission System or a User's System and will take account of active sources only including any contribution from the load to the fault current. The passive component of the load itself or other system shunt impedances should not be included.

(f) A User may at any time, in writing, specifically request for an equivalent to be prepared for an alternative System condition, for example where the User's System peak does not correspond to the National Electricity Transmission System peak, and NGET will, insofar as such request is reasonable, provide the information as soon as reasonably practicable following the request.
APPENDIX B - SINGLE LINE DIAGRAMS

PC.B.1 The diagrams below show three examples of single line diagrams, showing the detail that should be incorporated in the diagram. The first example is for a Network Operator connection, the second for a Generator connection, the third for a Power Park Module electrically equivalent system.

Network Operator Single Line Diagram
Notes:

(1) The electrically equivalent Power Park Unit consists of a number of actual Power Park Units of the same type ie. any equipment external to the Power Park Unit terminals is considered as part of the Equivalent Network. Power Park Units of different types shall be included in separate electrically equivalent Power Park Units. The total number of equivalent Power Park Units shall represent all of the actual Power Park Units in the Power Park Module.

(2) Separate electrically equivalent networks are required for each different type of electrically equivalent Power Park Unit. The electrically equivalent network shall include all equipment between the Power Park Unit terminals and the Common Collection Busbar.

(3) All Plant and Apparatus including the circuit breakers, transformers, lines, cables and reactive compensation plant between the Common Collection Busbar and Substation A shall be shown.
APPENDIX C - TECHNICAL AND DESIGN CRITERIA

PC.C.1 Planning and design of the SPT and SHETL Transmission Systems is based generally, but not totally, on criteria which evolved from joint consultation among various Transmission Licensees responsible for design of the National Electricity Transmission System.

PC.C.2 The above criteria are set down within the standards, memoranda, recommendations and reports and are provided as a guide to system planning. It should be noted that each scheme for reinforcement or modification of the Transmission System is individually designed in the light of economic and technical factors associated with the particular system limitations under consideration.

PC.C.3 The tables below identify the literature referred to above, together with the main topics considered within each document.

### PART 1 – SHETL's TECHNICAL AND DESIGN CRITERIA

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<tr>
<td>1</td>
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<tr>
<td>2</td>
<td>System Phasing</td>
<td>TPS 13/4</td>
</tr>
<tr>
<td>3</td>
<td>Not used</td>
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<tr>
<td>4</td>
<td>Planning Limits for Voltage Fluctuations Caused by Industrial, Commercial and Domestic Equipment in the United Kingdom</td>
<td>ER P28</td>
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<tr>
<td>5</td>
<td>EHV or HV Supplies to Induction Furnaces</td>
<td>ER P16 (Supported by ACE Report No.48)</td>
</tr>
<tr>
<td>6</td>
<td>Planning Levels for Harmonic Voltage Distortion and the Connection of Non-Linear Loads to Transmission Systems and Public Electricity Supply Systems in the United Kingdom</td>
<td>ER G5/4 (Supported by ACE Report No.73)</td>
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<td>7</td>
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- Voltage unbalance limits.
- Harmonic current limits.
- Harmonic distortion (waveform).
- Harmonic voltage distortion.
- Harmonic current distortion.
- Stage 1 limits.
- Stage 2 limits.
- Stage 3 Limits
- Addition of Harmonics
- Short Duration Harmonics
- Site Measurements
- Type of supply point to railway system.
- Estimation of traction loads.
- Nature of traction current.
- System disturbance estimation.
- Earthing arrangements.
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<td>Continuous tape recording of system control telephone messages and instructions.</td>
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<td>Emergency action in the event of an exceptionally serious breakdown of the main system.</td>
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<td>Version [ ]</td>
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## APPENDIX D - DATA NOT DISCLOSED TO A RELEVANT TRANSMISSION LICENSEE

### PC.D.1

Pursuant to PC.3.4, NGET will not disclose to a Relevant Transmission Licensee data items specified in the below extract:

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<th>DATA CATEGORY</th>
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<td>Output Usable (on a monthly basis)</td>
<td>MW</td>
<td>SPD</td>
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<td></td>
<td>Option 1</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>BOILER &amp; STEAM TURBINE DATA</td>
<td></td>
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<tr>
<td></td>
<td>Boiler time constant (Stored Active Energy)</td>
<td>S</td>
<td>DPD</td>
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<tr>
<td></td>
<td>HP turbine response ratio: (Proportion of Primary Response arising from HP turbine)</td>
<td>%</td>
<td>DPD</td>
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<tr>
<td></td>
<td>HP turbine response ratio: (Proportion of High Frequency Response arising from HP turbine)</td>
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<tr>
<td></td>
<td>All Generating Units</td>
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<td></td>
<td>Governor Deadband</td>
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<tr>
<td></td>
<td>- Maximum Setting</td>
<td>±Hz</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>- Normal Setting</td>
<td>±Hz</td>
<td>DPD</td>
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<td>- Minimum Setting</td>
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<td>Reheater Time Constant</td>
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<tr>
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<td>Boiler Time Constant</td>
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<td>DPD</td>
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<td></td>
<td>HP Power Fraction</td>
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<td>IP Power Fraction</td>
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<td>Waste Heat Recovery Boiler Time Constant</td>
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<td>UNIT CONTROL OPTIONS</td>
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<td></td>
<td>Maximum droop</td>
<td>%</td>
<td>DPD</td>
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<td></td>
<td>Minimum droop</td>
<td>%</td>
<td>DPD</td>
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<tr>
<td></td>
<td>Maximum frequency deadband</td>
<td>±Hz</td>
<td>DPD</td>
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<td>DATA DESCRIPTION</td>
<td>UNITS</td>
<td>DATA CATEGORY</td>
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<tr>
<td></td>
<td>Normal frequency deadband</td>
<td>±Hz</td>
<td>DPD</td>
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<tr>
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<td>Minimum frequency deadband</td>
<td>±Hz</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>Maximum Output deadband</td>
<td>±MW</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>Normal Output deadband</td>
<td>±MW</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>Minimum Output deadband</td>
<td>±MW</td>
<td>DPD</td>
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<td>Frequency settings between which Unit Load Controller droop applies:</td>
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<td></td>
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<td>Minimum</td>
<td>Hz</td>
<td>DPD</td>
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<td>Sustained response normally selected</td>
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<td>ACTIVE POWER TRANSFER CAPABILITY (PC.A.3.2.2)</td>
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<td>Import MW available in excess of Registered Import Capacity</td>
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<td>SPD</td>
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<td></td>
<td>Time duration for which MW in excess of Registered Import Capacity is available</td>
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<td>SPD</td>
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<tr>
<td></td>
<td>Export MW available in excess of Registered Capacity</td>
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<td>SPD</td>
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<td></td>
<td>Time duration for which MW in excess of Registered Capacity is available</td>
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<td>SPD</td>
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<td>Nominal loading rate</td>
<td>MW/s</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>Maximum (emergency) loading rate</td>
<td>MW/s</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>MW Import</td>
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<td></td>
<td>Nominal loading rate</td>
<td>MW/s</td>
<td>DPD</td>
</tr>
<tr>
<td></td>
<td>Maximum (emergency) loading rate</td>
<td>MW/s</td>
<td>DPD</td>
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</table>
APPENDIX E - OFFSHORE TRANSMISSION SYSTEM AND OTSDUW PLANT AND APPARATUS TECHNICAL AND DESIGN CRITERIA

PC.E.1 In the absence of any relevant Electrical Standards, Offshore Transmission Licensees and Generators undertaking OTSDUW are required to ensure that all equipment used in the construction of their network is:

(i) Fully compliant and suitably designed to any relevant Technical Specification;

(ii) Suitable for use and operation in an Offshore environment, where such parts of the Offshore Transmission System and OTSDUW Plant and Apparatus are located in Offshore Waters and are not installed in an area that is protected from that Offshore environment, and

(iii) Compatible with any relevant Electrical Standards or Technical Specifications at the Offshore Grid Entry Point and Interface Point.

PC.E.2 The table below identifies the technical and design criteria that will be used in the design and development of an Offshore Transmission System and OTSDUW Plant and Apparatus.

<table>
<thead>
<tr>
<th>ITEM No.</th>
<th>DOCUMENT</th>
<th>REFERENCE No.</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>National Electricity Transmission System Security and Quality of Supply Standard</td>
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<tr>
<td>2*</td>
<td>Planning Limits for Voltage Fluctuations Caused by Industrial, Commercial and Domestic Equipment in the United Kingdom</td>
<td>ER P28</td>
</tr>
<tr>
<td>3*</td>
<td>Planning Levels for Harmonic Voltage Distortion and the Connection of Non-Linear Loads to Transmission Systems and Public Electricity Supply Systems in the United Kingdom</td>
<td>ER G5/4</td>
</tr>
<tr>
<td>4*</td>
<td>Planning Limits for Voltage Unbalance in the United Kingdom</td>
<td>ER P29</td>
</tr>
</tbody>
</table>

* Note:- Items 2, 3 and 4 above shall only apply at the Interface Point.
APPENDIX F - OTSDUW DATA AND INFORMATION AND OTSDUW
NETWORK DATA AND INFORMATION

PC.F.1  Introduction

PC.F.1.1  Appendix F specifies data requirements to be submitted to NGET by Users and Users by NGET in respect of OTSDUW.

PC.F.1.2  Such User submissions shall be in accordance with the OTSDUW Development and Data Timetable in a Construction Agreement.

PC.F.1.3  Such NGET submissions shall be issued with the offer of a CUSC Contract in the case of the data in Part 1 and otherwise in accordance with the OTSDUW Development and Data Timetable in a Construction Agreement.

PC.F.2  OTSDUW Network Data and Information

PC.F.2.1  With the offer of a CUSC Contract under the OTSDUW Arrangements NGET shall provide:

(a) the site specific technical design and operational criteria for the Connection Site;
(b) the site specific technical design and operational criteria for the Interface Point, and
(c) details of NGET’s preliminary identification and consideration of the options available for the Interface Point in the context of the User’s application for connection or modification, the preliminary costs used by NGET in assessing such options and the Offshore Works Assumptions including the assumed Interface Point identified during these preliminary considerations.

PC.F.2.2  In accordance with the OTSDUW Development and Data Timetable in a Construction Agreement NGET shall provide the following information and data to a User:

(a) equivalent of the fault infeed or fault level ratings at the Interface Point (as identified in the Offshore Works Assumptions)
(b) notification of numbering and nomenclature of the HV Apparatus comprised in the OTSDUW:
   (i) past or present physical properties, including both actual and designed physical properties, of Plant and Apparatus forming part of the National Electricity Transmission System at the Interface Point at which the OTSUW will be connected to the extent it is required for the design and construction of the OTSDUW, including but not limited to:
   (ii) the voltage of any part of such Plant and Apparatus;
   (iii) the electrical current flowing in or over such Plant and Apparatus;
   (iv) the configuration of any part of such Plant and Apparatus
   (v) the temperature of any part of such Plant and Apparatus;
   (vi) the pressure of any fluid forming part of such Plant and Apparatus
   (vii) the electromagnetic properties of such Plant and Apparatus; and
   (viii) the technical specifications, settings or operation of any Protection Systems forming part of such Plant and Apparatus.
(c) information necessary to enable the User to harmonise the OTSDUW with construction works elsewhere on the National Electricity Transmission System that could affect the OTSDUW
(d) information related to the current or future configuration of any circuits of the Onshore Transmission System with which the OTSUW are to connect;
(e) any changes which are planned on the National Electricity Transmission System in the current or following six Financial Years and which will materially affect the planning or development of the OTSDUW.

PC.F.2.3 At the User’s reasonable request additional information and data in respect of the National Electricity Transmission System shall be provided.

PC.F.2.4 OTSDUW Data And Information

PC.F.2.4.1 In accordance with the OTSDUW Development and Data Timetable in a Construction Agreement the User shall provide to NGET the following information and data relating to the OTSDUW Plant and Apparatus in accordance with Appendix A of the Planning Code.

< END OF PLANNING CODE >
## GENERAL CONDITIONS  
**(GC)**

### CONTENTS

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</table>
GC.1 INTRODUCTION

GC.1.1 The General Conditions contain provisions which are of general application to all provisions of the Grid Code. Their objective is to ensure, to the extent possible, that the various sections of the Grid Code work together and work in practice for the benefit of all Users.

GC.2 SCOPE

GC.2.1 The General Conditions apply to all Users (including, for the avoidance of doubt, NGET).

GC.3 UNFORESEEN CIRCUMSTANCES

GC.3.1 If circumstances arise which the provisions of the Grid Code have not foreseen, NGET shall, to the extent reasonably practicable in the circumstances, consult promptly and in good faith all affected Users in an effort to reach agreement as to what should be done. If agreement between NGET and those Users as to what should be done cannot be reached in the time available, NGET shall determine what is to be done. Wherever NGET makes a determination, it shall do so having regard, wherever possible, to the views expressed by Users and, in any event, to what is reasonable in all the circumstances. Each User shall comply with all instructions given to it by NGET following such a determination provided that the instructions are consistent with the then current technical parameters of the particular User's System registered under the Grid Code. NGET shall promptly refer all such unforeseen circumstances and any such determination to the Panel for consideration in accordance with GC.4.2(e).

GC.4 THE GRID CODE REVIEW PANEL

GC.4.1 NGET shall establish and maintain the Panel, which shall be a standing body to carry out the functions referred to in paragraph GC.4.2.

GC.4.2 The Panel shall:

(a) keep the Grid Code and its working under review;
(b) review all suggestions for GC Modification Proposals which the Authority or any User or any Relevant Transmission Licensee (in respect of PC.3.4, PC.3.5, PC.6.2, PC Appendix A and C, CC.6.1, CC.6.2, CC.6.3, OC2.3.2, OC8 and GC.11, OC7.6, OC9.4 and OC9.5) may wish to submit to NGET for consideration by the Panel from time to time;
(c) publish recommendations as to GC Modification Proposals that NGET or the Panel feels are necessary or desirable and the reasons for the recommendations;
(d) issue guidance in relation to the Grid Code and its implementation, performance and interpretation when asked to do so by any User; consider what changes are necessary to the Grid Code arising out of any unforeseen circumstances referred to it by NGET under GC.3;
(e) consider and identify changes to the Grid Code to remove any unnecessary differences in the treatment of issues in Scotland from their treatment in England and Wales; and
(f) consider any changes to the Code Administration Code of Practice that the Code Administrator considers appropriate to raise.

GC.4.3 The Panel shall consist of:

(a) a Chairman and up to 4 members appointed by NGET;
(b) a person appointed by the Authority; and
(c) the following members:

(i) 3 persons representing those Generators each having Large Power Stations with a total Registered Capacity in excess of 3 GW;
(ii) a person representing those Generators each having Large Power Stations with a total Registered Capacity of 3 GW or less;
(iii) 2 persons representing the Network Operators in England and Wales;
(iv) a person representing the Network Operators in Scotland;
(v) a person representing the Suppliers;
(vi) a person representing the Non Embedded Customers;
(vii) a person representing the Generators with Small Power Stations and/or Medium Power Stations (other than Generators who also have Large Power Stations);
(viii) a person representing the BSC Panel;
(ix) a person representing the Externally Interconnected System Operators;
(x) a person representing Generators with Novel Units; and

each of whom shall be appointed pursuant to the rules issued pursuant to GC.4.4.

GC.4.4 The Panel shall establish and comply at all times with its own rules and procedures relating to the conduct of its business, which shall be approved by the Authority.

GC.4.5 NGET shall consult in writing all Authorised Electricity Operators which are liable to be materially affected in relation to all GC Modification Proposals and shall submit all GC Modification Proposals to the Panel for discussion prior to such consultation. Each GC Modification Proposal shall include an evaluation of whether the amendment would better facilitate the achievement of the Grid Code objectives, as provided in NGET’s Transmission Licence. Where the impact on greenhouse gasses arising from any GC Modification Proposal is likely to be material, this evaluation shall include an assessment of the quantifiable impact of any GC Modification Proposal on greenhouse gas emissions, such assessment to be conducted in accordance with any guidance (on the treatment of carbon costs and evaluation of greenhouse gas emissions) as may be issued by the Authority from time to time.

GC.4.6 NGET shall establish (and, where appropriate, revise from time to time) joint working arrangements with the STC Committee, the CM Administrative Parties and the Secretary of State to facilitate the identification, co-ordination, making and implementation of change to the STC, and the identification of potential inconsistencies between GC Modification Proposals and Capacity Market Documents or the CfD Documents (as applicable) consequent on a GC Modification Proposal in a full and timely manner. These working arrangements shall be such as enable the consideration development and evaluation of GC Modification Proposals to proceed in a full and timely manner and enable changes to the STC, and enable the identification of inconsistencies between GC Modification Proposals and the Capacity Market Documents and/or CfD Documents to be raised with the CM Administrative Parties and the Secretary of State, consequent on a GC Modification Proposal to be made and given effect wherever possible (subject to any necessary consent of the Authority) at the same time as such approved amendment is made and given effect.

GC.4.7 NGET shall ensure that the Code Administrator undertakes its functions consistently with the relevant provisions of the Code Administration Code of Practice.

GC.4.8 The procedures set out in the General Conditions, to the extent that they are dealt with in the Code Administration Code of Practice, are consistent with the principles contained in the Code Administration Code of Practice. Where inconsistencies or conflicts exist between the Grid Code and the Code Administration Code of Practice, the Grid Code shall take precedence.
GC.4.9 NGET is required by its Licence to provide a report to the Authority where NGET determines that GC Modification Proposals are required. Following provision of such report to the Authority, if the Authority determines that it is such that the Authority cannot properly form an opinion on the GC Modification Proposal, it may issue a direction to the NGET:

(a) specifying the additional steps (including drafting or amending existing drafting associated with the amendment), revisions (including revision to the timetable), analysis or information that it requires in order to form such an opinion; and

(b) requiring the report to be revised and to be re-submitted.

GC.4.10 If a report is to be revised and re-submitted in accordance with a direction issued pursuant to GC.4.9, it shall be re-submitted as soon after the Authority’s direction as is appropriate, taking into account the complexity, importance and urgency of the GC Modification Proposal. NGET shall decide on the level of analysis and consultation required in order to comply with the Authority’s direction and shall agree an appropriate timetable for meeting its obligations.

GC.5 COMMUNICATION BETWEEN NGET AND USERS

GC.5.1 Unless otherwise specified in the Grid Code, all instructions given by NGET and communications (other than relating to the submission of data and notices) between NGET and Users (other than Generators, DC Converter Station owners or Suppliers) shall take place between the NGET Control Engineer based at the Transmission Control Centre notified by NGET to each User prior to connection, and the relevant User Responsible Engineer/Operator, who, in the case of a Network Operator, will be based at the Control Centre notified by the Network Operator to NGET prior to connection.

GC.5.2 Unless otherwise specified in the Grid Code, all instructions given by NGET and communications (other than relating to the submission of data and notices) between NGET and Generators and/or DC Converter Station owners and/or Suppliers shall take place between the NGET Control Engineer based at the Transmission Control Centre notified by NGET to each Generator or DC Converter Station, owner prior to connection, or to each Supplier prior to submission of BM Unit Data, and either the relevant Generator’s or DC Converter Station owner’s or Supplier’s Trading Point (if it has established one) notified to NGET or the Control Point of the Supplier or the Generator’s Power Station or DC Converter Station, as specified in each relevant section of the Grid Code. In the absence of notification to the contrary, the Control Point of a Generator’s Power Station will be deemed to be the Power Station at which the Generating Units or Power Park Modules are situated.

GC.5.3 Unless otherwise specified in the Grid Code, all instructions given by NGET and communications (other than relating to the submission of data and notices) between NGET and Users will be given by means of the Control Telephony referred to in CC.6.5.2.

GC.5.4 If the Transmission Control Centre notified by NGET to each User prior to connection, or the User Control Centre, notified in the case of a Network Operator to NGET prior to connection, is moved to another location, whether due to an emergency or for any other reason, NGET shall notify the relevant User or the User shall notify NGET, as the case may be, of the new location and any changes to the Control Telephony or System Telephony necessitated by such move, as soon as practicable following the move.

GC.5.5 If any Trading Point notified to NGET by a Generator or DC Converter Station owner prior to connection, or by a Supplier prior to submission of BM Unit Data, is moved to another location or is shut down, the Generator, DC Converter Station owner or Supplier shall immediately notify NGET.

GC.5.6 The recording (by whatever means) of instructions or communications given by means of Control Telephony or System Telephony will be accepted by NGET and Users as evidence of those instructions or communications.

GC.6 MISCELLANEOUS
GC.6.1  Data and Notices

Data and notices to be submitted either to NGET or to Users under the Grid Code (other than data which is the subject of a specific requirement of the Grid Code as to the manner of its delivery) shall be delivered in writing either by hand or sent by first-class pre-paid post, or by facsimile transfer or by electronic mail to a specified address or addresses previously supplied by NGET or the User (as the case may be) for the purposes of submitting that data or those notices.

GC.6.1.2 References in the Grid Code to “in writing” or “written” include typewriting, printing, lithography, and other modes of reproducing words in a legible and non-transitory form and in relation to submission of data and notices includes electronic communications.

GC.6.1.3 Data delivered pursuant to paragraph GC.6.1.1, in the case of data being submitted to NGET, shall be addressed to the Transmission Control Centre at the address notified by NGET to each User prior to connection, or to such other Department within NGET or address, as NGET may notify each User from time to time, and in the case of notices to be submitted to Users, shall be addressed to the chief executive of the addressee (or such other person as may be notified by the User in writing to NGET from time to time) at its address(es) notified by each User to NGET in writing from time to time for the submission of data and service of notices under the Grid Code (or failing which to the registered or principal office of the addressee).

GC.6.1.4 All data items, where applicable, will be referenced to nominal voltage and Frequency unless otherwise stated.

GC.7  OWNERSHIP OF PLANT AND/OR APPARATUS

References in the Grid Code to Plant and/or Apparatus of a User include Plant and/or Apparatus used by a User under any agreement with a third party.

GC.8  SYSTEM CONTROL

Where a User's System (or part thereof) is, by agreement, under the control of NGET, then for the purposes of communication and co-ordination in operational timescales NGET can (for those purposes only) treat that User's System (or part thereof) as part of the National Electricity Transmission System, but, as between NGET and Users, it shall remain to be treated as the User's System (or part thereof).

GC.9  EMERGENCY SITUATIONS

Users should note that the provisions of the Grid Code may be suspended, in whole or in part, during a Security Period, as more particularly provided in the Fuel Security Code, or pursuant to any directions given and/or orders made by the Secretary of State under section 96 of the Act or under the Energy Act 1976.

GC.10  MATTERS TO BE AGREED

Save where expressly stated in the Grid Code to the contrary where any matter is left to NGET and Users to agree and there is a failure so to agree the matter shall not without the consent of both NGET and Users be referred to arbitration pursuant to the rules of the Electricity Supply Industry Arbitration Association.

GC.11  GOVERNANCE OF ELECTRICAL STANDARDS

GC.11.1 In relation to the Electrical Standards the following provisions shall apply.

GC.11.2 (a) If a User, or in respect of (a) or (b) to the annex, NGET, or in respect of (c) or (d) to the annex, the Relevant Transmission Licensee, wishes to:-
(i) raise a change to an Electrical Standard;
(ii) add a new standard to the list of Electrical Standards;
(iii) delete a standard from being an Electrical Standard,

it shall activate the Electrical Standards procedure.

(b) The Electrical Standards procedure is the notification to the secretary to the Panel of the wish to so change, add or delete an Electrical Standard. That notification must contain details of the proposal, including an explanation of why the proposal is being made.

GC.11.3 Ordinary Electrical Standards Procedure

(a) Unless it is identified as an urgent Electrical Standards proposal (in which case GC.11.4 applies) or unless the notifier requests that it be tabled at the next Panel meeting, as soon as reasonably practicable following receipt of the notification, the Panel secretary shall forward the proposal, with a covering paper, to Panel members.

(b) If no objections are raised within 20 Business Days of the date of the proposal, then it shall be deemed approved pursuant to the Electrical Standards procedure, and NGET shall make the change to the relevant Electrical Standard or the list of Electrical Standards contained in the Annex to this GC.11.

(c) If there is an objection (or if the notifier had requested that it be tabled at the next Panel meeting rather than being dealt with in writing), then the proposal will be included in the agenda for the next following Panel meeting.

(d) If there is broad consensus at the Panel meeting in favour of the proposal, NGET will make the change to the Electrical Standard or the list of Electrical Standards contained in the Annex to this GC.11.

(e) If there is no such broad consensus, including where the Panel believes that further consultation is needed, NGET will establish a Panel working group if this was thought appropriate and in any event NGET shall undertake a consultation of Authorised Electricity Operators liable to be materially affected by the proposal.

(f) Following such consultation, NGET will report back to Panel members, either in writing or at a Panel meeting. If there was broad consensus in the consultation, then NGET will make the change to the Electrical Standard or the list of Electrical Standards contained in the Annex to this GC.11.

(g) Where following such consultation there is no broad consensus, the matter will be referred to the Authority who will decide whether the proposal should be implemented and will notify NGET of its decision. If the decision is to so implement the change, NGET will make the change to the Electrical Standard or the list of Electrical Standards contained in the Annex to this GC.11.

(h) In all cases where a change is made to the list of Electrical Standards, NGET will publish and circulate a replacement page for the Annex to this GC covering that list and reflecting the change.

GC.11.4 Urgent Electrical Standards Procedure

(a) If the notification is marked as an urgent Electrical Standards proposal, the Panel secretary will contact Panel members in writing to see whether a majority who are contactable agree that it is urgent and in that notification the secretary shall propose a timetable and procedure which shall be followed.

(b) If such members do so agree, then the secretary will initiate the procedure accordingly, having first obtained the approval of the Authority.

(c) If such members do not so agree, or if the Authority declines to approve the proposal being treated as an urgent one, the proposal will follow the ordinary Electrical Standards procedure as set out in GC.11.3 above.
(d) If a proposal is implemented using the urgent Electrical Standards procedure, NGET will contact all Panel members after it is so implemented to check whether they wish to discuss further the implemented proposal to see whether an additional proposal should be considered to alter the implementation, such proposal following the ordinary Electrical Standards procedure.
GC.12 CONFIDENTIALITY

GC.12.1 Users should note that although the Grid Code contains in certain sections specific provisions which relate to confidentiality, the confidentiality provisions set out in the CUSC apply generally to information and other data supplied as a requirement of or otherwise under the Grid Code. To the extent required to facilitate the requirements of the EMR Documents, Users that are party to the Grid Code but are not party to the CUSC Framework Agreement agree that the confidentiality provisions of the CUSC are deemed to be imported into the Grid Code.

GC.12.2 NGET has obligations under the STC to inform Relevant Transmission Licensees of certain data. NGET may pass on User data to a Relevant Transmission Licensee where:
(a) NGET is required to do so under a provision of Schedule 3 of the STC; and/or
(b) permitted in accordance with PC.3.4, PC.3.5 and OC2.3.2.

GC.12.3 NGET has obligations under the EMR Documents to inform EMR Administrative Parties of certain data. NGET may pass on User data to an EMR Administrative Party where NGET is required to do so under an EMR Document.

GC.12.4 NGET may use User data for the purpose of carrying out its EMR Functions.

GC.13 RELEVANT TRANSMISSION LICENSEES

GC.13.1 It is recognised that the Relevant Transmission Licensees are not parties to the Grid Code. Accordingly, notwithstanding that Operating Code No. 8 Appendix 1 ("OC8A") and Appendix 2 ("OC8B"), OC7.6, OC9.4 and OC9.5 refer to obligations which will in practice be performed by the Relevant Transmission Licensees in accordance with relevant obligations under the STC, for the avoidance of doubt all contractual rights and obligations arising under OC8A, OC8B, OC7.6, OC9.4 and OC9.5 shall exist between NGET and the relevant User and in relation to any enforcement of those rights and obligations OC8A, OC8B, OC7.6, OC9.4 and OC9.5 shall be so read and construed. The Relevant Transmission Licensees shall enjoy no enforceable rights under OC8A, OC8B, OC7.6, OC9.4 and OC9.5 nor shall they be liable (other than pursuant to the STC) for failing to discharge any obligations under OC8A, OC8B, OC7.6, OC9.4 and OC9.5.

GC.13.2 For the avoidance of doubt nothing in this Grid Code confers on any Relevant Transmission Licensee any rights, powers or benefits for the purpose of the Contracts (Rights of Third Parties) Act 1999.

GC.14 BETTA TRANSITION ISSUES

GC.14.1 The provisions of the Appendix to the General Conditions apply in relation to issues arising out of the transition associated with the designation of GC Modification Proposals by the Secretary of State in accordance with the provisions of the Energy Act 2004 for the purposes of Condition C14 of NGET’s Transmission Licence.

GC.15 EMBEDDED EXEMPTABLE LARGE AND MEDIUM POWER STATIONS

GC.15.1 This GC.15.1 shall have an effect until and including 31st March 2007.
(i) CC.6.3.2, CC.6.3.7, CC.8.1 and BC3.5.1; and
(ii) Planning Code obligations and other Connection Conditions; shall apply to a User who owns or operates an Embedded Exemptable Large Power Station, or a Network Operator in respect of an Embedded Exemptable Medium Power Station, except where and to the extent that, in respect of that Embedded Exemptable Large Power Station or Embedded Exemptable Medium Power Station, NGET agrees or where the relevant User and NGET fail to agree, where and to the extent that the Authority consents.
GC.16 SIGNIFICANT CODE REVIEW

GC.16.1 A Significant Code Review is a code review process initiated and led by the Authority, on one of a number of potential triggers. The Authority will launch a Significant Code Review on publication of a notice setting out matters such as the scope of the review, reasons for it and announcing the start date.

GC16.2 A Significant Code Review Phase begins on the start date set out in the Authority’s notice, during which time any GC Modification Proposals that relate to the subject matter of the review are restricted, to ensure the process is as efficient as possible. Once the Authority has published its Significant Code Review conclusions, the Authority may direct NGET to raise a GC Modification Proposal to put into effect the results of the Significant Code Review.

GC16.3 Where a GC Modification Proposal is raised during a Significant Code Review Phase unless exempted by the Authority, NGET in consultation with the Panel shall assess whether the GC Modification Proposal falls within the scope of a Significant Code Review and shall notify the Authority of its assessment, its reasons for that assessment and any representations received in relation to it as soon as practicable.

GC.16.4 The GC Modification Proposal shall proceed during a Significant Code Review Phase unless directed otherwise by the Authority in accordance with the paragraphs below.

GC.16.5 The Authority may at any time direct that a GC Modification Proposal made during a Significant Code Review Phase falls within the scope of a Significant Code Review and must not be made during the Significant Code Review Phase. If so directed the GC Modification Proposal will not proceed and it shall be withdrawn or suspended until the end of the Significant Code Review Phase.

GC.16.6 A GC Modification Proposal that falls within the scope of a Significant Code Review may be made where:

(i) the Authority so determines, having taken into account (among other things) the urgency of the subject matter of the GC Modification Proposal; or

(ii) NGET makes the GC Modification Proposal pursuant to a direction from the Authority in accordance with the provisions below.

GC.16.7 Where a direction in accordance with GC.16.5 has not been issued, NGET, in consultation with the Panel may proceed with the GC Modification Proposal.

GC.16.8 Within twenty-eight (28) days after the Authority has published its Significant Code Review conclusions, the Authority may issue to NGET directions, including directions to NGET to make GC Modification Proposal(s). NGET shall comply with those directions. Where NGET makes a GC Modification Proposal in accordance with the Authority’s directions, it shall proceed as a normal GC Modification Proposal. Such Authority conclusions and directions shall not fetter the voting rights of the Panel or any recommendation NGET makes in relation to any GC Modification Proposal.

GC.16.9 NGET may not, without the prior consent of the Authority, withdraw a GC Modification Proposal made pursuant to a direction issued by the Authority pursuant to GC.16.8.
ANNEX TO THE GENERAL CONDITIONS

The Electrical Standards are as follows:

(a) Electrical Standards applicable in England and Wales

| The Relevant Electrical Standards Document | Issue 1.0 | 09-Jan-2006 |
| Control Telephony Electrical Standard      | Issue 1.0 | 17-Sept-2007 |

(b) The following specifications for electronic data communications facilities with reference to EDT and EDL facilities.

<table>
<thead>
<tr>
<th>Specification</th>
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<tr>
<td>EDT Interface Specification</td>
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(c) Scottish Electrical Standards for SPT’s Transmission System.

<table>
<thead>
<tr>
<th>Specification</th>
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<tr>
<td>SPTTS 1 Requirements for the SP Transmission System and Connection Points to it.</td>
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<td>SPTTS 2.1 Substations</td>
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<td>SPTTS 2.7 Substation Control Systems</td>
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<tr>
<td>SPTTS 2.12 Substation Auxiliary Supplies</td>
<td>Issue 1</td>
</tr>
</tbody>
</table>
(d) Scottish Electrical Standards for SHETL’s Transmission System.


2. NGTS 2.1: Substations Issue 2 May 1995


6. NGTS 3.2.3: Metal-Oxide surge arresters for use on 132, 275 and 400kV systems. Issue 2 May 1994.

7. NGTS 3.2.4: Current Transformers for protection and General use on the 132, 275 and 400kV systems. Issue 1 September 1992.

8. NGTS 3.2.5: Voltage Transformers for use on the 132, 275 and 400 kV systems. Issue 2 March 1994.


11. NGTS 3.2.9: Post Insulators for Substations. Issue 1 May 1996.


APPENDIX TO THE GENERAL CONDITIONS

GC.A.1 Introduction

This Appendix to the General Conditions deals with issues arising out of the transition associated with the designation of amendments to the Grid Code by the Secretary of State in accordance with the provisions of the Energy Act 2004 for the purposes of Condition C14 of NGET’s Transmission Licence. For the purposes of this Appendix to the General Conditions, the version of the Grid Code as amended by the changes designated by the Secretary of State and as further amended from time to time shall be referred to as the “GB Grid Code”.

GC.A.1.2 The provisions of this Appendix to the General Conditions shall only apply to Users (as defined in GC.A.1.4) and NGET after Go-Live for so long as is necessary for the transition requirements referred to in GC.A.1.1 and cut-over requirements (as further detailed in GC.A.3.1) to be undertaken.

GC.A.1.3 In this Appendix to the General Conditions:

(a) Existing E&W Users and E&W Applicants are referred to as “E&W Users”;  
(b) Users who as at 1 January 2005 have entered into an agreement or have accepted an offer for connection to and/or use of the Transmission System of NGET are referred to as “Existing E&W Users”; 
(c) Users (or prospective Users) other than Existing E&W Users who apply during the Transition Period for connection to and/or use of the Transmission System of NGET are referred to as “E&W Applicants”; 
(d) Existing Scottish Users and Scottish Applicants are referred to as “Scottish Users”; 
(e) Users who as at 1 January 2005 have entered into an agreement or have accepted an offer for connection to and/or use of the Transmission System of either Relevant Transmission Licensee are referred to as “Existing Scottish Users”; 
(f) Users (or prospective Users) other than Existing Scottish Users who apply during the Transition Period for connection to and/or use of the Transmission System of either Relevant Transmission Licensee are referred to as “Scottish Applicants”; 
(g) the term “Transition Period” means the period from Go-Active to Go-Live (unless it is provided to be different in relation to a particular provision), and is the period with which this Appendix to the General Conditions deals; 
(h) the term “Interim GB SYS” means the document of that name referred to in Condition C11 of NGET’s Transmission Licence;  
(i) the term “Go-Active” means the date on which the amendments designated by the Secretary of State to the Grid Code in accordance with the Energy Act 2004 come into effect; and 
(j) the term “Go-Live” means the date which the Secretary of State indicates in a direction shall be the BETTA go-live date.

GC.A.1.4 The provisions of GC.2.1 shall not apply in respect of this Appendix to the General Conditions, and in this Appendix to the General Conditions the term “Users” means:

(a) Generators;  
(b) Network Operators; 
(c) Non-Embedded Customers; 
(d) Suppliers;  
(e) BM Participants; and 
(f) Externally Interconnected System Operators,
(g) **DC Converter Station** owners

to the extent that the provisions of this Appendix to the **General Conditions** affect the rights and obligations of such **Users** under the other provisions of the **GB Grid Code**.

**GC.A.1.5**

The **GB Grid Code** has been introduced with effect from **Go-Active** pursuant to the relevant licence changes introduced into **NGET’s Transmission Licence**. **NGET** is required to implement and comply, and **Users** to comply, with the **GB Grid Code** subject as provided in this Appendix to the **General Conditions**, which provides for the extent to which the **GB Grid Code** is to apply to **NGET** and **Users** during the **Transition Period**.

**GC.A.1.6**

This Appendix to the **General Conditions** comprises:

(a) this Introduction;

(b) **GB Grid Code** transition issues; and

(c) Cut-over issues.

**GC.A.1.7**

Without prejudice to **GC.A.1.8**, the failure of any **User** or **NGET** to comply with this Appendix to the **General Conditions** shall not invalidate or render ineffective any part of this Appendix to the **General Conditions** or actions undertaken pursuant to this Appendix to the **General Conditions**.

**GC.A.1.8**

A **User** or **NGET** shall not be in breach of any part of this Appendix to the **General Conditions** to the extent that compliance with that part is beyond its power by reason of the fact that any other **User** or **NGET** is in default of its obligations under this Appendix to the **General Conditions**.

**GC.A.1.9**

Without prejudice to any specific provision under this Appendix to the **General Conditions** as to the time within which or the manner in which a **User** or **NGET** should perform its obligations under this Appendix to the **General Conditions**, where a **User** or **NGET** is required to take any step or measure under this Appendix to the **General Conditions**, such requirement shall be construed as including any obligation to:

(a) take such step or measure as quickly as reasonably practicable; and

(b) do such associated or ancillary things as may be necessary to complete such step or measure as quickly as reasonably practicable.

**GC.A.1.10**

**NGET** shall use reasonable endeavours to identify any amendments it believes are needed to the **GB Grid Code** in respect of the matters referred to for the purposes of **Condition C14** of **NGET’s Transmission Licence** and in respect of the matters identified in **GC.A.1.11**, and, having notified the **Authority** of its consultation plans in relation to such amendments, **NGET** shall consult in accordance with the instructions of the **Authority** concerning such proposed amendments.

**GC.A.1.11**

The following matters potentially require amendments to the **GB Grid Code**:

(a) The specific detail of the obligations needed to manage implementation in the period up to and following (for a temporary period) **Go-Live** to achieve the change to operation under the **GB Grid Code** (to be included in **GC.A.3**).

(b) Information (including data) and other requirements under the **GB Grid Code** applicable to **Scottish Users** during the **Transition Period** (to be included in **GC.A.2**).

(c) The conclusions of Ofgem/DTI in relation to small and/or embedded generator issues under BETTA and allocation of access rights on a GB basis.

(d) Any arrangements required to make provision for operational liaison, including **Black Start** and islanding arrangements in Scotland.

(e) Any arrangements required to make provision for cascade hydro **BM Units**.

(f) Any consequential changes to the safety co-ordination arrangements resulting from **STC** and **STC** procedure development.
(g) Any arrangements required to reflect the Electrical Standards for the Transmission Systems of SPT and SHETL.

(h) The conclusions of Ofgem/DTI in relation to planning and operating standards.

GC.A.1.12 NGET shall notify the Authority of any amendments that NGET identifies as needed pursuant to GC.A.1.10 and shall make such amendments as the Authority approves.

GC.A.2 GB Grid Code Transition

General Provisions

GC.A.2.1 The provisions of the GB Grid Code shall be varied or suspended (and the requirements of the GB Grid Code shall be deemed to be satisfied) by or in accordance with, and for the period and to the extent set out in this GC.A.2, and in accordance with the other applicable provisions in this Appendix to the General Conditions.

GC.A.2.2 E&W Users:

In furtherance of the licence provisions referred to in GC.A.1.5, E&W Users shall comply with the GB Grid Code during the Transition Period, but shall comply with and be subject to it subject to this Appendix to the General Conditions, including on the basis that:

(a) during the Transition Period the Scottish Users are only complying with the GB Grid Code in accordance with this Appendix to the General Conditions; and

(b) during the Transition Period the National Electricity Transmission System shall be limited to the Transmission System of NGET, and all rights and obligations of E&W Users in respect of the National Electricity Transmission System under the GB Grid Code shall only apply in respect of the Transmission System of NGET, and all the provisions of the GB Grid Code shall be construed accordingly.

GC.A.2.3 Scottish Users:

In furtherance of the licence provisions referred to in GC.A.1.5, Scottish Users shall comply with the GB Grid Code and the GB Grid Code shall apply to or in relation to them during the Transition Period only as provided in this Appendix to the General Conditions.

GC.A.2.4 NGET:

In furtherance of the licence provisions referred to in GC.A.1.5, NGET shall implement and comply with the GB Grid Code during the Transition Period, but shall implement and comply with and be subject to it subject to, and taking into account, all the provisions of this Appendix to the General Conditions, including on the basis that:

(a) during the Transition Period NGET’s rights and obligations in relation to E&W Users in respect of the National Electricity Transmission System under the GB Grid Code shall only apply in respect of the Transmission System of NGET, and all the provisions of the GB Grid Code shall be construed accordingly; and

(b) during the Transition Period NGET’s rights and obligations in relation to Scottish Users in respect of the National Electricity Transmission System under the GB Grid Code shall only be as provided in this Appendix to the General Conditions.

Specific Provisions

GC.A.2.5 Definitions:

The provisions of the GB Grid Code Glossary and Definitions shall apply to and for the purposes of this Appendix to the General Conditions except where provided to the contrary in this Appendix to the General Conditions.

GC.A.2.6 Identification of Documents:
In the period beginning at Go-Active, Scottish Users will work with NGET to identify and agree with NGET any documents needed to be in place in accordance with the GB Grid Code, to apply from Go-Live or as earlier provided for under this Appendix to the General Conditions, including (without limitation) Site Responsibility Schedules, Gas Zone Diagrams and OC9 Desynchronised Island Procedures.

GC.A.2.7 Data:
Each Scottish User must provide, or enable a Relevant Transmission Licensee to provide, NGET, as soon as reasonably practicable upon request, with all data which NGET needs in order to implement, with effect from Go-Live, the GB Grid Code in relation to Scotland. This data will include, without limitation, the data that a new User is required to submit to NGET under CC.5.2. NGET is also entitled to receive data on Scottish Users over the Relevant Transmission Licensees’ SCADA links to the extent that NGET needs it for use in testing and in order to implement, with effect from Go-Live, the GB Grid Code in relation to Scotland. After Go-Live such data shall, notwithstanding GC.A.1.2, be treated as though it had been provided to NGET under the enduring provisions of the GB Grid Code.

GC.A.2.8 Verification of Data etc:
NGET shall be entitled to request from a Scottish User (which shall comply as soon as reasonably practicable with such a request) confirmation and verification of any information (including data) that has been received by a Relevant Transmission Licensee under an existing grid code and passed on to NGET in respect of that Scottish User. After Go-Live such information (including data) shall, notwithstanding GC.A.1.2, be treated as though provided to NGET under the enduring provisions of the GB Grid Code.

GC.A.2.9 Grid Code Review Panel:
(a) The individuals whose names are notified to NGET by the Authority prior to Go-Active as Panel members (and alternate members, if applicable) are agreed by Users (including Scottish Users) and NGET to constitute the Panel members and alternate members of the Grid Code Review Panel as at the first meeting of the Grid Code Review Panel after Go-Active as if they had been appointed as Panel members (and alternate members) pursuant to the relevant provisions of the Constitution and Rules of the Grid Code Review Panel incorporating amendments equivalent to the amendments to GC.4.2 and GC.4.3 designated by the Secretary of State in accordance with the provisions of the Energy Act 2004 for the purposes of Condition C14 of NGET’s Transmission Licence.
(b) The provisions of GC.4 of the GB Grid Code shall apply to, and in respect of, Scottish Users from Go-Active.

GC.A.2.10 Interim GB SYS:
Where requirements are stated in, or in relation to, the GB Grid Code with reference to the Seven Year Statement, they shall be read and construed as necessary as being with reference to the Interim GB SYS.

GC.A.2.11 General Conditions:
The provisions of GC.4, GC.12 and GC.13.2 of the GB Grid Code shall apply to and be complied with by Scottish Users in respect of this Appendix to the General Conditions.

GC.A.2.12 OC2 Data
(a) The following provisions of the GB Grid Code shall apply to and be complied with by Scottish Users with effect from the relevant date indicated below:
   (i) OC2.4.1.2.3 (a) from 19 January 2005 in respect of 2 to 52 week submissions,
   (ii) OC2.4.1.2.4 (c) from 25 February 2005 in respect of 2 to 49 day submissions,
   (iii) OC2.4.1.2.4 (b) from 22 March 2005 in respect of 2 to 14 day submissions,
The data to be submitted in respect of OC2.4.1.2.3 (a) and OC2.4.1.2.4 (b) and (c) need only be in respect of dates on or after 1 April 2005.

GC.A.3 Cut-over

GC.A.3.1 It is anticipated that it will be appropriate for arrangements to be put in place for final transition to BETTA in the period up to and following (for a temporary period) Go-Live, for the purposes of:

(a) managing the transition from operations under the Grid Code as in force immediately prior to Go-Active to operations under the GB Grid Code and the BSC as in force on and after Go-Active;
(b) managing the transition from operations under the existing grid code applicable to Scottish Users as in force immediately prior to Go-Active to operations under the GB Grid Code as in force on and after Go-Active;
(c) managing the transition of certain data from operations under the existing grid code applicable to Scottish Users before and after Go-Active; and
(d) managing GB Grid Code systems, processes and procedures so that they operate effectively at and from Go-Live.

GC.A.3.2

(a) The provisions of BC1 (excluding BC1.5.1, BC1.5.2 and BC1.5.3) shall apply to and be complied with by Scottish Users and by NGET in respect of such Scottish Users with effect from 11:00 hours on the day prior to Go-Live
(b) Notwithstanding (a) above, Scottish Users may submit data for Go-Live 3 days in advance of Go-Live on the basis set out in the Data Validation, Consistency and Defaulting Rules which shall apply to Scottish Users and NGET in respect of such Scottish Users on that basis and for such purpose.
(c) The Operational Day for the purposes of any submissions by Scottish Users prior to Go-Live under a) and b) above for the day of Go-Live shall be 00:00 hours on Go Live to 05:00 hours on the following day.
(d) The provisions of BC2 shall apply to and be complied with by Scottish Users and by NGET in respect of such Scottish Users with effect from 23:00 hours on the day prior to Go-Live.
(e) The provisions of OC7.4.8 shall apply to and be complied with by Scottish Users and by NGET in respect of such Scottish Users with effect from 11:00 hours on the day prior to Go-Live.
(f) In order to facilitate cut-over, Scottish Users acknowledge and agree that NGET will exchange data submitted by such Scottish Users under BC1 prior to Go-Live with the Scottish system operators to the extent necessary to enable the cut-over.
(g) Except in the case of Reactive Power, Scottish Users should only provide Ancillary Services from Go-Live where they have been instructed to do so by NGET. In the case of Reactive Power, at Go-Live a Scottish Users MVAR output will be deemed to be the level instructed by NGET under BC2, following this Scottish Users should operate in accordance with BC2.A.2.6 on the basis that MVAR output will be allowed to vary with system conditions.

< END OF GENERAL CONDITIONS >
REVISIONS
(R)

(This section does not form part of the Grid Code)

R.1 **NGET’s Transmission Licence** sets out the way in which changes to the Grid Code are to be made and reference is also made to **NGET’s obligations under the General Conditions**.

R.2 All pages re-issued have the revision number on the lower left hand corner of the page and date of the revision on the lower right hand corner of the page.

R.3 The Grid Code was introduced in March 1990 and the first issue was revised 31 times. In March 2001 the New Electricity Trading Arrangements were introduced and Issue 2 of the Grid Code was introduced which was revised 16 times. At British Electricity Trading and Transmission Arrangements (BETTA) Go-Active Issue 3 of the Grid Code was introduced and subsequently revised 35 times. At Offshore Go-active Issue 4 of the Grid Code was introduced and has been revised 13 times since its original publication. Issue 5 of the Grid Code was published to accommodate the changes made by Grid Code Modification A/10 which has incorporated the **Generator compliance process** into the Grid Code.

R.4 This Revisions section provides a summary of the sections of the Grid Code changed by each revision to Issue 5.

R.5 All enquiries in relation to revisions to the Grid Code, including revisions to Issues 1, 2, 3, 4, 5 and 6 should be addressed to the Grid Code development team at the following email address:

*Grid.Code@nationalgrid.com*
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