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All Recipients of the Serviced Grid Code

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18th July 2011

Dear Sir/Madam

THE SERVICED GRID CODE – ISSUE 4 REVISION 6

Revision 6 of Issue 4 of the Grid Code has been approved by the Authority for implementation on **18th July 2011**.

I have enclosed the replacement pages that incorporate the agreed changes necessary to update the Grid Code Issue 4 Revision 5 to Revision 6 standard.

The enclosed note provides a brief summary of the changes made to the text.

Yours faithfully,

Thomas Derry
Commercial Analyst
Electricity Codes

THE GRID CODE – ISSUE 4 REVISION 6

INCLUSION OF REVISED PAGES

Title Page			
Glossary and Definitions		-	**Entire section reissued**
Operating Code No.2 (OC2)	OC2 OC2 Appendix 1	}	**Entire section reissued**
Connection Conditions	CC.6		**Pages 6 - 43**
Revisions		-	**Page 5**

NOTE: See Page 1 of the Revisions section of the Grid Code for details of how the revisions are indicated on the pages.

NATIONAL GRID ELECTRICITY TRANSMISSION PLC

THE GRID CODE – ISSUE 4 REVISION 6

SUMMARY OF CHANGES

The changes arise from the implementation of modifications proposed in the following Consultation Paper:

F/09 - Grid Code changes relating to BSC proposal P243: Extension of OC2 obligations to include Interconnector Owners

Summary of Proposal

Grid Code change F/09 was raised in October 2009. F/09 seeks to amend OC2 to widen its scope to include external interconnector owners. The effect of this change would be to require external interconnector owners to submit Output Useable data to NGET under the Grid Code. As interconnector flows are bi-directional, the proposal includes a requirement for external interconnectors to also provide data in respect of available interconnector import capacity. It is envisaged that data would be exchanged between NGET and external interconnector owners using existing systems, keeping the cost of the change to a minimum.

The categories of Users affected by this revision to the Grid Code are:

- Interconnector Owners
- National Electricity Transmission System Operator

D/10 - Frequency and Voltage Operating Ranges

Summary of Proposal

Grid Code Consultation D/10 was published in May 2011. D/10 seeks to ensure that the Grid Code obligations relating to the voltage and frequency generator operating ranges are clear, unambiguous and are appropriately consistent with international standards.

The categories of Users affected by this revision to the Grid Code are:

- Generators
- Generator asset suppliers
- National Electricity Transmission System Operator
- Relevant Transmission Licensees

THE GRID CODE

Issue 4 Revision 6

18th July 2011

THIS DOCUMENT IS ISSUED BY:-

NATIONAL GRID ELECTRICITY TRANSMISSION plc
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(e) a **Data Registration Code**, which sets out a unified listing of all data required by **NGET** from **Users**, and by **Users** from **NGET**, under the **Grid Code**;

(f) **General Conditions**, which are intended to ensure, so far as possible, that the various sections of the **Grid Code** work together and work in practice and include provisions relating to the establishment of a **Grid Code Review Panel** and other provisions of a general nature.

4. This **Preface** is provided to **Users** and to prospective **Users** for information only and does not constitute part of the **Grid Code**.

GLOSSARY AND DEFINITIONS
(G & D)

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**

i) An interconnection and/or

ii) 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

The Electricity Act 1989 (as amended by the Utilities Act 2000 and the Energy Act 2004).

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.

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 VA = 1 kVA 1000 kVA = 1 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**.
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.
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: 1. Moriston 2. Killin 3. Garry 4. Conon 5. Clunie 6. 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.

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

1. 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

2. 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.

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.
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 7, dated 11th October 2004. 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**.

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.
Disputes Resolution Procedure	The procedure described in the **CUSC** relating to disputes resolution.
Distribution Code	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**.
Droop	The ratio of the per unit steady state change in speed, or in **Frequency** to the per unit steady state change in power output**.**
Dynamic Parameters	Those parameters listed in Appendix 1 to **BC1** under the heading **BM Unit Data** – **Dynamic Parameters**.
E&W Offshore Transmission System	An **Offshore Transmission System** with an **Interface Point** in England and Wales.

E&W Offshore Transmission Licensee	A person who owns or operates an **E&W Offshore Transmission System** pursuant to a **Transmission Licence**.
E&W Transmission System	Collectively **NGET's Transmission System** and any **E&W Offshore Transmission Systems**.
E&W User	A **User** in **England** and **Wales** or any **Offshore User** who owns or operates **Plant** and/or **Apparatus** connected to an **E&W Offshore Transmission System**.
Earth Fault Factor	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.

Earthing	A way of providing a connection between conductors and earth by an **Earthing Device** which is either: (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 (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.
Earthing Device	A means of providing a connection between a conductor and earth being of adequate strength and capability.
Electrical Standard	A standard listed in the Annex to the **General Conditions**.
Electricity Council	That body set up under the Electricity Act, 1957.
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**.
Engineering Recommendations	The documents referred to as such and issued by the Electricity Association or the former Electricity Council.
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 BS**4999 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 BS**4999 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 BS**4999 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**):-

Dungeness B
Hinkley Point B
Heysham 1
Heysham 2
Hartlepool
Hunterston B
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**):- Calder Hall Chapelcross Dungeness A Hinkley Point A Oldbury-on-Severn Bradwell Sizewell A 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 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**.

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	The **Safety Co-ordinator** implementing **Safety Precautions**.
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**
Integral Equipment Test or **IET**	A test on equipment, associated with **Plant** and/or **Apparatus**, which takes place when that **Plant** and/or **Apparatus** forms part of a **Synchronised System** and which, in the reasonable judgement of the person wishing to perform the test, may cause an **Operational Effect**.

Interconnection Agreement	An agreement made between **NGET** and an **Externally Interconnected System Operator** and/or an **Interconnector User** and/or other relevant persons for the **External Interconnection** relating to an **External Interconnection** and/or an agreement under which an **Interconnector User** can use an **External Interconnection**.
Interconnector Export Capacity	In relation to an **External Interconnection** 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 **External Interconnection** can export to the **Grid Entry Point**.
Interconnector Import Capacity	In relation to an **External Interconnection** 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 **External Interconnection** can import from the **Grid Entry Point**.
Interconnector Owner	Has the meaning given to the term in the **Connection and Use of System Code**.
Interconnector User	Has the meaning set out in the **BSC**.
Interface Agreement	Has the meaning set out in the **CUSC**.
Interface Point	as the context admits or requires either; (a) the electrical point of connection between an **Offshore Transmission System** and an **Onshore Transmission System**, or (b) the electrical point of connection between an **Offshore Transmission System** and a **Network Operator's User System.**
Interface Point Capacity	The maximum amount of **Active Power** transferable at the **Interface Point** as declared by a User under the **OTSDUW Arrangements** expressed in whole MW.
Interface Point Target Voltage/Power factor	The nominal target voltage/power factor at an **Interface Point** which a **Network Operator** requires **NGET** to achieve by operation of the relevant **Offshore Transmission System**.
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 Intertripping**.

Intertrip Apparatus

Apparatus which performs **Intertripping**.

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:

(a) **NGET's Transmission System** where such **Power Station** has a **Registered Capacity** of 100MW or more; or

(b) **SPT's Transmission System** where such **Power Station** has a **Registered Capacity** of 30MW or more; or

(c) **SHETL's Transmission System** where such **Power Station** has a **Registered Capacity** of 10MW or more; or

(d) 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:

(a) **NGET's Transmission System** and such **Power Station** has a **Registered Capacity** of 100MW or more; or

(b) **SPT's Transmission System** and such **Power Station** has a **Registered Capacity** of 30MW or more; or

(c) **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:

(a) **NGET's Transmission Area** where such **Power Station** has a **Registered Capacity** of 100MW or more; or

(b) **SPT's Transmission Area** where such **Power Station** has a **Registered Capacity** of 30MW or more; or

(c) **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.

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.
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, 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.
Multiple Point of Connection	A double (or more) **Point of Connection**, being two (or more) **Points of Connection** interconnected to each other through the **User's System**.

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 **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. These details, when read together as represented in the file, form **NGET's** view of an appropriate representation of the **National Electricity Transmission System** for technical analysis purposes only. The file will only deal with the **National Electricity Transmission System**.

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: 2366977) 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 BS**4999 Section 116.1 : 1992].
No System Connection	As defined in OC8A.1.6.2 and OC8B.1.7.2
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:-

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;

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;

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**.

Offshore Power Park String

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**.

Offshore Synchronous Generating Unit	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**.

Offshore Tender Process	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.
Offshore Transmission Distribution Connection Agreement	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**.
Offshore Transmission Licensee	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**.
Offshore Transmission System	A system consisting (wholly or mainly) of high voltage electric lines owned or operated by an **Offshore Transmission Licensee** and used for the transmission of electricity from one **Power Station** to a sub-station or to another **Power Station** or between sub-stations, and includes any **Plant** and **Apparatus** and meters owned or operated by any **Offshore Transmission Licensee** in connection with the transmission of electricity but does not include any **Remote Transmission Assets**. An **Offshore Transmission System** extends from the **Interface Point** 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**.
Offshore Waters	Has the meaning given to "offshore waters" in Section 90(9) of the Energy Act 2004.
Offshore Works Assumptions	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.
Onshore	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.
Onshore DC Converter	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.
Onshore Generating Unit	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**.

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 **Onshore 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 to the **Onshore Transmission System** (or **User System** if **Embedded**). 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 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**.
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 and/or installation 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.**
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**.
OTSUA	**OTSDUW Plant and Apparatus** constructed and/or installed by a **User** under the **OTSDUW Arrangements** that once transferred to a **Relevant Transmission Licensee** under an **Offshore Tender Process** will form the **Offshore 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**.

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 BS**4999 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**.
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 BS**4999 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** on an **E&W Transmission System** and/or by the **Relevant Scottish Transmission Licensee** and each **Scottish User** in relation to **Connection Points** on a **Scottish Transmission System** to be responsible for the co-ordination of **Safety Precautions** at each **Connection Point** 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	**Isolation** and/or **Earthing**.
Safety Rules	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 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.

SF_6 Gas Zone A segregated zone surrounding electrical conductors within a casing containing SF_6 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 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:

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

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

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

(d) 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:

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

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

(c) **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:

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

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

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

Synchronising Generation

The amount of MW (in whole MW) produced at the moment of synchronising.

Synchronising Group

A group of two or more **Gensets**) which require a minimum time interval between their **Synchronising** or **De-Synchronising** times.

Synchronous Compensation

The operation of rotating synchronous **Apparatus** for the specific purpose of either the generation or absorption of **Reactive Power**.

Synchronous Generating Unit

Any **Onshore Synchronous Generating Unit** or **Offshore Synchronous Generating Unit**.

Synchronous Speed

That speed required by a **Generating Unit** to enable it to be **Synchronised** to a **System**.

System	Any **User System** and/or the **National Electricity Transmission System**, as the case may be.
System Ancillary Services	Collectively **Part 1 System Ancillary Services** and **Part 2 System Ancillary Services**.
System Constraint	A limitation on the use of a **System** due to lack of transmission capacity or other **System** conditions.
System Constrained Capacity	That portion of **Registered Capacity** or **Registered Import Capacity** not available due to a **System Constraint**.
System Constraint Group	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.
System Fault Dependability Index or **Dp**	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: **Dp** = $1 - F_1/A$ Where: A = Total number of **System** faults F_1 = Number of **System** faults where there was a failure to trip a circuit-breaker.
System Margin	The margin in any period between (a) the sum of Maximum Export Limits and (b) forecast **Demand** and the **Operating Margin**, for that period.
System Negative Reserve Active Power Margin or **System NRAPM**	That margin of **Active Power** sufficient to allow the largest loss of **Load** at any time.
System Operator - Transmission Owner Code or **STC**	Has the meaning set out in **NGET's Transmission Licence**

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) 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	The **National Electricity Transmission System** and all **User Systems** in **the National Electricity Transmission System Operator Area**.
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** 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.
Two Shifting Limit	The maximum number of times in any **Operational Day** that a **Genset** may **De-Synchronise**.
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 BS**4999 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**.
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 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 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** 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 **IEC**308.

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**.

2. Construction of References

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 GD >

CC.6 TECHNICAL, DESIGN AND OPERATIONAL CRITERIA

CC.6.1 **NATIONAL ELECTRICITY TRANSMISSION SYSTEM** PERFORMANCE CHARACTERISTICS

CC.6.1.1 **NGET** shall ensure that, subject as provided in the **Grid Code**, the **National Electricity Transmission System** complies with the following technical, design and operational criteria in relation to the part of the **National Electricity Transmission System** at the **Connection Site** with a **User** and in the case of **OTSDUW Plant and Apparatus**, a **Transmission Interface Point** (unless otherwise specified in CC.6) although in relation to operational criteria **NGET** may be unable (and will not be required) to comply with this obligation to the extent that there are insufficient **Power Stations** or **User Systems** are not available or **Users** do not comply with **NGET's** instructions or otherwise do not comply with the **Grid Code** and each **User** shall ensure that its **Plant** and **Apparatus** complies with the criteria set out in CC.6.1.5.

Grid **Frequency** Variations

CC.6.1.2 The **Frequency** of the **National Electricity Transmission System** shall be nominally 50Hz and shall be controlled within the limits of 49.5 - 50.5Hz unless exceptional circumstances prevail.

CC.6.1.3 The **System Frequency** could rise to 52Hz or fall to 47Hz in exceptional circumstances. Design of **User's Plant** and **Apparatus** and **OTSDUW Plant and Apparatus** must enable operation of that **Plant** and **Apparatus** within that range in accordance with the following:-

Frequency Range	Requirement
51.5Hz - 52Hz	Operation for a period of at least 15 minutes is required each time the **Frequency** is above 51.5Hz.
51Hz - 51.5Hz	Operation for a period of at least 90 minutes is required each time the **Frequency** is above 51Hz.
49.0Hz - 51Hz	Continuous operation is required
47.5Hz - 49.0Hz	Operation for a period of at least 90 minutes is required each time the **Frequency** is below 49.0Hz.
47Hz - 47.5Hz	Operation for a period of at least 20 seconds is required each time the **Frequency** is below 47.5Hz.

For the avoidance of doubt, disconnection, by frequency or speed based relays is not permitted within the frequency range 47.5Hz to 51.5Hz, unless agreed with NGET in accordance with CC.6.3.12.

Grid Voltage Variations

CC.6.1.4 Subject as provided below, the voltage on the 400kV part of the **National Electricity Transmission System** at each **Connection Site** with a **User** (and in the case of **OTSDUW Plant and Apparatus**, a **Transmission Interface Point**) will normally remain within ±5% of the nominal value unless abnormal conditions prevail. The minimum voltage is -10% and the maximum voltage is +10% unless abnormal conditions prevail, but voltages between +5% and +10% will not last longer than 15 minutes unless

abnormal conditions prevail. Voltages on the 275kV and 132kV parts of the **National Electricity Transmission System** at each **Connection Site** with a **User** (and in the case of **OTSDUW Plant and Apparatus**, a **Transmission Interface Point**) will normally remain within the limits ±10% of the nominal value unless abnormal conditions prevail. At nominal **System** voltages below 132kV the voltage of the **National Electricity Transmission System** at each **Connection Site** with a **User** (and in the case of **OTSDUW Plant and Apparatus**, a **Transmission Interface Point**) will normally remain within the limits ±6% of the nominal value unless abnormal conditions prevail. Under fault conditions, voltage may collapse transiently to zero at the point of fault until the fault is cleared. The normal operating ranges of the **National Electricity Transmission System** are summarised below:

National Electricity Transmission System Nominal Voltage	Normal Operating Range
400kV	400kV ±5%
275kV	275kV ±10%
132kV	132kV ±10%

NGET and a **User** may agree greater or lesser variations in voltage to those set out above in relation to a particular **Connection Site**, and insofar as a greater or lesser variation is agreed, the relevant figure set out above shall, in relation to that **User** at the particular **Connection Site**, be replaced by the figure agreed.

Voltage Waveform Quality

CC.6.1.5 All **Plant** and **Apparatus** connected to the **National Electricity Transmission System**, and that part of the **National Electricity Transmission System** at each **Connection Site** or, in the case of **OTSDUW Plant and Apparatus**, at each **Interface Point**, should be capable of withstanding the following distortions of the voltage waveform in respect of harmonic content and phase unbalance:

(a) Harmonic Content

The **Electromagnetic Compatibility Levels** for harmonic distortion on the **Onshore Transmission System** from all sources under both **Planned Outage** and fault outage conditions, (unless abnormal conditions prevail) shall comply with the levels shown in the tables of Appendix A of **Engineering Recommendation** G5/4. The **Electromagnetic Compatibility Levels** for harmonic distortion on an **Offshore Transmission System** will be defined in relevant **Bilateral Agreements**.

Engineering Recommendation G5/4 contains planning criteria which **NGET** will apply to the connection of non-linear **Load** to the **National Electricity Transmission System**, which may result in harmonic emission limits being specified for these **Loads** in the relevant **Bilateral Agreement**. The application of the planning criteria will take into account the position of existing and prospective **Users' Plant** and **Apparatus** (and **OTSDUW Plant and Apparatus**) in relation to harmonic emissions. **Users** must ensure that connection of distorting loads to their **User Systems** do not cause any harmonic emission limits specified in the **Bilateral Agreement**, or where no such limits are specified, the relevant planning levels specified in **Engineering Recommendation** G5/4 to be exceeded.

(b) Phase Unbalance

Under **Planned Outage** conditions, the maximum **Phase (Voltage) Unbalance** on the **National Electricity Transmission System** should remain, in England and Wales, below 1%, and in Scotland, below 2%, unless abnormal conditions prevail and **Offshore** (or in the case of **OTSDUW**, **OTSDUW Plant and Apparatus**) will be defined in relevant **Bilateral Agreements**.

CC.6.1.6 In England and Wales, under the **Planned Outage** conditions stated in CC.6.1.5(b) infrequent short duration peaks with a maximum value of 2% are permitted for **Phase (Voltage) Unbalance**, subject to the prior agreement of **NGET** under the **Bilateral Agreement** and in relation to **OTSDUW**, the **Construction Agreement**. **NGET** will only agree following a specific assessment of the impact of these levels on **Transmission Apparatus** and other **Users Apparatus** with which it is satisfied.

Voltage Fluctuations

CC.6.1.7 Voltage fluctuations at a **Point of Common Coupling** with a fluctuating **Load** directly connected to the **Onshore Transmission System** shall not exceed:

(a) In England and Wales, 1% of the voltage level for step changes which may occur repetitively. Any large voltage excursions other than step changes may be allowed up to a level of 3% provided that this does not constitute a risk to the **National Electricity Transmission System** or, in **NGET's** view, to the **System** of any **User**. In Scotland, the limits for voltage level step changes are as set out in **Engineering Recommendation** P28.

(b) For voltages above 132kV, **Flicker Severity (Short Term)** of 0.8 Unit and a **Flicker Severity (Long Term)** of 0.6 Unit, for voltages 132kV and below, **Flicker Severity (Short Term)** of 1.0 Unit and a **Flicker Severity (Long Term**) of 0.8 Unit, as set out in **Engineering Recommendation** P28 as current at the **Transfer Date**.

CC.6.1.8 Voltage fluctuations at a **Point of Common Coupling** with a fluctuating **Load** directly connected to an **Offshore Transmission System** (or in the case of **OTSDUW**, **OTSDUW Plant and Apparatus**) shall not exceed the limits set out in the **Bilateral Agreement**.

CC.6.2 **PLANT** AND **APPARATUS** RELATING TO **CONNECTION SITE** AND **INTERFACE POINT**

The following requirements apply to **Plant** and **Apparatus** relating to the **Connection Point**, which (except as otherwise provided in the relevant paragraph) each **User** must ensure are complied with in relation to its **Plant** and **Apparatus** and which in the case of CC.6.2.2.2.2, CC.6.2.3.1.1 and CC.6.2.1.1(b) only, **NGET** must ensure are complied with in relation to **Transmission Plant** and **Apparatus**, or the **User** must ensure are complied with in relation to **OTSDUW Plant and Apparatus**, as provided in those paragraphs.

CC.6.2.1 General Requirements

CC.6.2.1.1 (a) The design of connections between the **National Electricity Transmission System** and:-

(i) any **Generating Unit** (other than a **CCGT Unit** or **Power Park Unit**) **DC Converter**, **Power Park Module** or **CCGT Module**, or

(ii) any **Network Operator's User System**, or

(iii) **Non-Embedded Customers** equipment;

will be consistent with the **Licence Standards**.

(b) The **National Electricity Transmission System** (and any **OTSDUW Plant and Apparatus**) at nominal **System** voltages of 132kV and above is/shall be designed to be earthed with an **Earth Fault Factor** of, in England and Wales or **Offshore**, below 1.4 and in Scotland, below 1.5. Under fault conditions the rated **Frequency** component of voltage could fall transiently to zero on one or more phases or, in England and Wales, rise to 140% phase-to-earth voltage, or in Scotland, rise to 150% phase-to-earth voltage. The voltage rise would last only for the time that the fault conditions exist. The fault conditions referred to here are those existing when the type of fault is single or two phase-to-earth.

(c) For connections to the **National Electricity Transmission System** at nominal **System** voltages of below 132kV the earthing requirements and voltage rise conditions will be advised by **NGET** as soon as practicable prior to connection and in the case of **OTSDUW Plant and Apparatus** shall be advised to **NGET** by the **User**.

CC.6.2.1.2 Substation **Plant** and **Apparatus**

(a) The following provisions shall apply to all **Plant** and **Apparatus** which is connected at the voltage of the **Connection Point** (and **OTSDUW** Plant and Apparatus at the **Interface Point**) and which is contained in equipment bays that are within the **Transmission** busbar protection zone at the **Connection Point**. This includes circuit breakers, switch disconnectors, disconnectors, **Earthing Devices**, power transformers, voltage transformers, reactors, current transformers, surge arresters, bushings, neutral equipment, capacitors, line traps, coupling devices, external insulation and insulation co-ordination devices. Where necessary, this is as more precisely defined in the **Bilateral Agreement**.

(i) **Plant** and/or **Apparatus** prior to 1st January 1999

Each item of such **Plant** and/or **Apparatus** which at 1st January 1999 is either :-

installed; or
owned (but is either in storage, maintenance or awaiting installation); or
ordered;

and is the subject of a **Bilateral Agreement** with regard to the purpose for which it is in use or intended to be in use, shall comply with the relevant standards/specifications applicable at the time that the **Plant** and/or **Apparatus** was designed (rather than commissioned) and any further requirements as specified in the **Bilateral Agreement**.

(ii) **Plant** and/or **Apparatus** post 1st January 1999 for a new **Connection Point**

Each item of such **Plant** and/or **Apparatus** installed in relation to a new **Connection Point** after 1st January 1999 shall comply with the relevant **Technical Specifications** and any further requirements identified by **NGET**, acting reasonably, to reflect the options to be followed within the **Technical Specifications** and/or to complement if necessary the **Technical Specifications** so as to enable **NGET** to comply with its obligations in

relation to the **National Electricity Transmission System** or, in Scotland or **Offshore**, the **Relevant Transmission Licensee** to comply with its obligations in relation to its **Transmission System**. This information, including the application dates of the relevant **Technical Specifications**, will be as specified in the **Bilateral Agreement**.

(iii) New **Plant** and/or **Apparatus** post 1st January 1999 for an existing **Connection Point**

Each new additional and/or replacement item of such **Plant** and/or **Apparatus** installed in relation to a change to an existing **Connection Point** after 1st January 1999 shall comply with the standards/specifications applicable when the change was designed, or such other standards/specifications as necessary to ensure that the item of **Plant** and/or **Apparatus** is reasonably fit for its intended purpose having due regard to the obligations of **NGET**, the relevant **User** and, in Scotland, or **Offshore**, also the **Relevant Transmission Licensee** under their respective **Licences**. Where appropriate this information, including the application dates of the relevant standards/specifications, will be as specified in the varied **Bilateral Agreement**.

(iv) Used **Plant** and/or **Apparatus** being moved, re-used or modified

If, after its installation, any such item of **Plant** and/or **Apparatus** is subsequently:-

moved to a new location; or
used for a different purpose; or
otherwise modified;

then the standards/specifications as described in (i), (ii), or (iii) above as applicable will apply as appropriate to such **Plant** and/or **Apparatus**, which must be reasonably fit for its intended purpose having due regard to the obligations of **NGET**, the relevant **User** and, in Scotland or **Offshore**, also the **Relevant Transmission Licensee** under their respective **Licences**.

(b) **NGET** shall at all times maintain a list of those **Technical Specifications** and additional requirements which might be applicable under this CC.6.2.1.2 and which may be referenced by **NGET** in the **Bilateral Agreement**. **NGET** shall provide a copy of the list upon request to any **User**. **NGET** shall also provide a copy of the list to any new **User** upon receipt of an application form for a **Bilateral Agreement** for a new **Connection Point**.

(c) Where the **User** provides **NGET** with information and/or test reports in respect of **Plant** and/or **Apparatus** which the **User** reasonably believes demonstrate the compliance of such items with the provisions of a **Technical Specification** then **NGET** shall promptly and without unreasonable delay give due and proper consideration to such information.

(d) **Plant** and **Apparatus** shall be designed, manufactured and tested in premises with an accredited certificate in accordance with the quality assurance requirements of the relevant standard in the BS EN ISO 9000 series (or equivalent as reasonably approved by **NGET**) or in respect of test premises which do not include a manufacturing facility premises with an accredited certificate in accordance with BS EN 45001.

(e) Each connection between a **User** and the **National Electricity Transmission System** must be controlled by a circuit-breaker (or circuit breakers) capable of interrupting the maximum short circuit current at the point of connection. The **Seven Year Statement** gives values of short circuit current and the rating of **Transmission** circuit breakers at existing and committed **Connection Points** for future years.

CC.6.2.2 Requirements at **Connection Points** or, in the case of **OTSDUW** at **Interface Points** that relate to **Generators** or O**TSDUW Plant and Apparatus** or **DC Converter Station** owners

CC.6.2.2.1 Not Used.

CC.6.2.2.2 **Generating Unit, OTSDUW Plant and Apparatus** and **Power Station Protection** Arrangements

CC.6.2.2.2.1 Minimum Requirements

Protection of **Generating Units** (other than **Power Park Units**), **DC Converters**, **OTSDUW Plant and Apparatus** or **Power Park Modules** and their connections to the **National Electricity Transmission System** must meet the minimum requirements given below. These are necessary to reduce to a practical minimum the impact on the **National Electricity Transmission System** of faults on **OTSDUW Plant and Apparatus** circuits or circuits owned by **Generators** or **DC Converter Station** owners.

CC.6.2.2.2.2 Fault Clearance Times

(a) The fault clearance times for faults on the **Generator's** or **DC Converter Station** owner's equipment directly connected to the **National Electricity Transmission System** or **OTSDUW Plant and Apparatus** and for faults on the **National Electricity Transmission System** directly connected to the **Generator** or **DC Converter Station** owner's equipment or **OTSDUW Plant and Apparatus**, from fault inception to the circuit breaker arc extinction, shall be set out in accordance with the **Bilateral Agreement**. The times specified in accordance with the **Bilateral Agreement** shall not be faster than:

(i) 80mS at 400kV
(ii) 100mS at 275kV
(iii) 120mS at 132kV and below

but this shall not prevent a **User** or **NGET** or a **Generator** in respect of **OTSDUW Plant and Apparatus** having faster fault clearance times.

Slower fault clearance times may be specified in accordance with the **Bilateral Agreement** for faults on the **National Electricity Transmission System**. Slower fault clearance times for faults on the **Generator** or **DC Converter Station** owner's equipment or **OTSDUW Plant and Apparatus** may be agreed in accordance with the terms of the **Bilateral Agreement** but only if **System** requirements, in **NGET's** view, permit. The probability that the fault clearance times stated in accordance with the **Bilateral Agreement** will be exceeded by any given fault, must be less than 2%.

(b) For the event that the above fault clearance times are not met as a result of failure to operate on the **Main Protection System(s)** provided, the **Generators** or **DC Converter Station** owners or **Generators** in the case of **OTSDUW Plant and Apparatus** shall provide **Back-Up Protection**. **NGET** will also provide **Back-Up**

Protection and these **Back-Up Protections** will be co-ordinated so as to provide **Discrimination**.

On a **Generating Unit** (other than **Power Park Units**), **DC Converter** or **Power Park Module** or **OTSDUW Plant and Apparatus** connected to the **National Electricity Transmission System** where only one **Main Protection** is provided to clear faults on the **HV Connections** within the required fault clearance time, the **Back-Up Protection** provided by the **Generators** (including in respect of **OTSDUW Plant and Apparatus**) and **DC Converter Station** owners shall operate to give a fault clearance time of no slower than 300 ms at the minimum infeed for normal operation for faults on the **HV Connections**. On **Generating Units** (other than **Power Park Units**), **DC Converters** or **Power Park Modules** or **OTSDUW Plant and Apparatus** connected to the **National Electricity Transmission System** at 400 kV and 275 kV where two **Main Protections** are provided and on **Generating Units** (other than **Power Park Units**), **DC Converters** or **Power Park Modules** or **OTSDUW Plant and Apparatus** connected to the **National Electricity Transmission System** at 132 kV and below, the **Back-Up Protection** shall operate to give a fault clearance time of no slower than 800 ms in England and Wales or **Offshore** and 300 ms in Scotland at the minimum infeed for normal operation for faults on the **HV Connections**.

Generators' (including in respect of **OTSDUW Plant and Apparatus**) and **DC Converter Station** owners' **Back-Up Protection** will also be required to withstand, without tripping, the loading incurred during the clearance of a fault on the **National Electricity Transmission System** by breaker fail **Protection** at 400kV or 275kV or of a fault cleared by **Back-Up Protection** where the **Generator** (including in the case of **OTSDUW Plant and Apparatus**) or **DC Converter** is connected at 132kV and below. This will permit **Discrimination** between **Generator** or **DC Converter Back-Up Protection** and **Back-Up Protection** provided on the **National Electricity Transmission System** and other **Users' Systems**.

(c) When the **Generating Unit** (other than **Power Park Units**), or the **DC Converter** or **Power Park Module** or **OTSDUW Plant and Apparatus** is connected to the **National Electricity Transmission System** at 400kV or 275kV, and in Scotland and **Offshore** also at 132kV, and a circuit breaker is provided by the **Generator** (including in respect of **OTSDUW Plant and Apparatus**) or the **DC Converter Station** owner, or **NGET**, as the case may be, to interrupt fault current interchange with the **National Electricity Transmission System**, or **Generator's System**, or **DC Converter Station** owner's **System**, as the case may be, circuit breaker fail **Protection** shall be provided by the **Generator** (including in respect of **OTSDUW Plant and Apparatus**) or **DC Converter Station** owner, or **NGET**, as the case may be, on this circuit breaker. In the event, following operation of a **Protection** system, of a failure to interrupt fault current by these circuit-breakers within the **Fault Current Interruption Time**, the circuit breaker fail **Protection** is required to initiate tripping of all the necessary electrically adjacent circuit-breakers so as to interrupt the fault current within the next 200 ms.

(d) The target performance for the **System Fault Dependability Index** shall be not less than 99%. This is a measure of the ability of **Protection** to initiate successful tripping of circuit breakers which are associated with the faulty item of **Apparatus**.

CC.6.2.2.3 Equipment to be provided

CC.6.2.2.3.1 **Protection** of Interconnecting Connections

The requirements for the provision of **Protection** equipment for interconnecting connections will be specified in the **Bilateral Agreement**. In this **CC** the term "interconnecting connections" means the primary conductors from the current transformer accommodation on the circuit side of the circuit breaker to the **Connection Point**.

CC.6.2.2.3.2 Circuit-breaker fail **Protection**

The **Generator** or **DC Converter Station** owner will install circuit breaker fail **Protection** equipment in accordance with the requirements of the **Bilateral Agreement**. The **Generator** or **DC Converter Station** owner will also provide a back-trip signal in the event of loss of air from its pressurised head circuit breakers, during the **Generating Unit** (other than a **CCGT Unit** or **Power Park Unit**) or **CCGT Module** or **DC Converter** or **Power Park Module** run-up sequence, where these circuit breakers are installed.

CC.6.2.2.3.3 Loss of Excitation

The **Generator** must provide **Protection** to detect loss of excitation on a **Generating Unit** and initiate a **Generating Unit** trip.

CC.6.2.2.3.4 Pole-Slipping **Protection**

Where, in **NGET's** reasonable opinion, **System** requirements dictate, **NGET** will specify in the **Bilateral Agreement** a requirement for **Generators** to fit pole-slipping **Protection** on their **Generating Units**.

CC.6.2.2.3.5 Signals for Tariff Metering

Generators and **DC Converter Station** owners will install current and voltage transformers supplying all tariff meters at a voltage to be specified in, and in accordance with, the **Bilateral Agreement**.

CC.6.2.2.4 Work on **Protection** Equipment

No busbar **Protection**, mesh corner **Protection**, circuit-breaker fail **Protection** relays, AC or DC wiring (other than power supplies or DC tripping associated with the **Generating Unit**, **DC Converter** or **Power Park Module** itself) may be worked upon or altered by the **Generator** or **DC Converter Station** owner personnel in the absence of a representative of **NGET** or in Scotland or **Offshore**, a representative of **NGET**, or written authority from **NGET** to perform such work or alterations in the absence of a representative of **NGET**.

CC.6.2.2.5 Relay Settings

Protection and relay settings will be co-ordinated (both on connection and subsequently) across the **Connection Point** in accordance with the **Bilateral Agreement** and in relation to **OTSDUW Plant and Apparatus**, across the **Interface Point** in accordance with the **Bilateral Agreement** to ensure effective disconnection of faulty **Apparatus**.

CC.6.2.3 Requirements at **Connection Points** relating to **Network Operators** and **Non-Embedded Customers**

CC.6.2.3.1 **Protection** Arrangements for **Network Operators** and **Non-Embedded Customers**

CC.6.2.3.1.1 **Protection** of **Network Operator** and **Non-Embedded Customers User Systems** directly supplied from the **National Electricity Transmission System**, must meet the minimum requirements referred to below:

Fault Clearance Times

(a) The fault clearance times for faults on **Network Operator** and **Non-Embedded Customer** equipment directly connected to the **National Electricity Transmission System**, and for faults on the **National Electricity Transmission System** directly connected to the **Network Operator's** or **Non-Embedded Customer's** equipment, from fault inception to the circuit breaker arc extinction, shall be set out in accordance with each **Bilateral Agreement**. The times specified in accordance with the **Bilateral Agreement** shall not be faster than:

(i) 80mS at 400kV
(ii) 100mS at 275kV
(iii) 120mS at 132kV and below

but this shall not prevent a **User** or **NGET** having a faster fault clearance time. Slower fault clearance times may be specified in accordance with the **Bilateral Agreement** for faults on the **National Electricity Transmission System**. Slower fault clearance times for faults on the **Network Operator** and **Non-Embedded Customers** equipment may be agreed in accordance with the terms of the **Bilateral Agreement** but only if **System** requirements in **NGET's** view permit. The probability that the fault clearance times stated in accordance with the **Bilateral Agreement** will be exceeded by any given fault must be less than 2%.

(b) (i) For the event of failure of the **Protection** systems provided to meet the above fault clearance time requirements, **Back-Up Protection** shall be provided by the **Network Operator** or **Non-Embedded Customer** as the case may be.

(ii) **NGET** will also provide **Back-Up Protection**, which will result in a fault clearance time slower than that specified for the **Network Operator** or **Non-Embedded Customer Back-Up Protection** so as to provide **Discrimination**.

(iii) For connections with the **National Electricity Transmission System** at 132kV and below, it is normally required that the **Back-Up Protection** on the **National Electricity Transmission System** shall discriminate with the **Network Operator** or **Non-Embedded Customer's Back-Up Protection**.

(iv) For connections with the **National Electricity Transmission System** at 400kV or 275kV, the **Back-Up Protection** will be provided by the **Network Operator** or **Non-Embedded Customer**, as the case may be, with a fault clearance time not slower than 300mS for faults on the **Network Operator's** or **Non-Embedded Customer's Apparatus**.

(v) Such **Protection** will also be required to withstand, without tripping, the loading incurred during the clearance of a fault on the **National Electricity Transmission System** by breaker fail **Protection** at 400kV or 275kV. This will permit **Discrimination** between **Network Operator** or **Non-Embedded**

Customer, as the case may be, **Back-Up Protection** and **Back-Up Protection** provided on the **National Electricity Transmission System** and other **User Systems**. The requirement for and level of **Discrimination** required will be specified in the **Bilateral Agreement**.

(c) (i) Where the **Network Operator** or **Non-Embedded Customer** is connected to the **National Electricity Transmission System** at 400kV or 275kV, and in Scotland also at 132kV, and a circuit breaker is provided by the **Network Operator** or **Non-Embedded Customer**, or **NGET**, as the case may be, to interrupt the interchange of fault current with the **National Electricity Transmission System** or the **System** of the **Network Operator** or **Non-Embedded Customer**, as the case may be, circuit breaker fail **Protection** will be provided by the **Network Operator** or **Non-Embedded Customer**, or **NGET**, as the case may be, on this circuit breaker.

(ii) In the event, following operation of a **Protection** system, of a failure to interrupt fault current by these circuit-breakers within the **Fault Current Interruption Time**, the circuit breaker fail **Protection** is required to initiate tripping of all the necessary electrically adjacent circuit-breakers so as to interrupt the fault current within the next 200 ms.

(d) The target performance for the **System Fault Dependability Index** shall be not less than 99%. This is a measure of the ability of **Protection** to initiate successful tripping of circuit breakers which are associated with the faulty items of **Apparatus**.

CC.6.2.3.2 Fault Disconnection Facilities

(a) Where no **Transmission** circuit breaker is provided at the **User's** connection voltage, the **User** must provide **NGET** with the means of tripping all the **User's** circuit breakers necessary to isolate faults or **System** abnormalities on the **National Electricity Transmission System**. In these circumstances, for faults on the **User's System**, the **User's Protection** should also trip higher voltage **Transmission** circuit breakers. These tripping facilities shall be in accordance with the requirements specified in the **Bilateral Agreement**.

(b) **NGET** may require the installation of a **System to Generator Operational Intertripping Scheme** in order to enable the timely restoration of circuits following power **System** fault(s). These requirements shall be set out in the relevant **Bilateral Agreement**.

CC.6.2.3.3 Automatic Switching Equipment

Where automatic reclosure of **Transmission** circuit breakers is required following faults on the **User's System**, automatic switching equipment shall be provided in accordance with the requirements specified in the **Bilateral Agreement**.

CC.6.2.3.4 Relay Settings

Protection and relay settings will be co-ordinated (both on connection and subsequently) across the **Connection Point** in accordance with the **Bilateral Agreement** to ensure effective disconnection of faulty **Apparatus**.

CC.6.2.3.5 Work on **Protection** equipment

Where a **Transmission Licensee** owns the busbar at the **Connection Point**, no busbar **Protection**, mesh corner **Protection** relays, AC or DC wiring (other than power supplies

or DC tripping associated with the **Network Operator** or **Non-Embedded Customer's Apparatus** itself) may be worked upon or altered by the **Network Operator** or **Non-Embedded Customer** personnel in the absence of a representative of **NGET** or in Scotland, a representative of **NGET**, or written authority from **NGET** to perform such work or alterations in the absence of a representative of **NGET**.

CC.6.2.3.6 Equipment to be provided

CC.6.2.3.6.1 **Protection** of Interconnecting Connections

The requirements for the provision of **Protection** equipment for interconnecting connections will be specified in the **Bilateral Agreement**.

CC.6.3 GENERAL **GENERATING UNIT** (AND **OTSDUW**) REQUIREMENTS

CC.6.3.1 This section sets out the technical and design criteria and performance requirements for **Generating Units**, **DC Converters** and **Power Park Modules** (whether directly connected to the **National Electricity Transmission System** or **Embedded**) and (where provided in this section) **OTSDUW Plant and Apparatus** which each **Generator** or **DC Converter Station** owner must ensure are complied with in relation to its **Generating Units**, **DC Converters** and **Power Park Modules** and **OTSDUW Plant and Apparatus** but does not apply to **Small Power Stations** or individually to **Power Park Units**. References to **Generating Units**, **DC Converters** and **Power Park Modules** in this CC.6.3 should be read accordingly. The performance requirements that **OTSDUW Plant and Apparatus** must be capable of providing at the **Interface Point** under this section may be provided using a combination of **Generator Plant** and **Apparatus** and/or **OTSDUW Plant** and **Apparatus**.

Plant Performance Requirements

CC.6.3.2 (a) When supplying **Rated MW** all **Onshore Synchronous Generating Units** must be capable of continuous operation at any point between the limits 0.85 **Power Factor** lagging and 0.95 **Power Factor** leading at the **Onshore Synchronous Generating Unit** terminals. At **Active Power** output levels other than **Rated MW**, all **Onshore Synchronous Generating Units** must be capable of continuous operation at any point between the **Reactive Power** capability limits identified on the **Generator Performance Chart**.

In addition to the above paragraph, where **Onshore Synchronous Generating Unit(s)**:

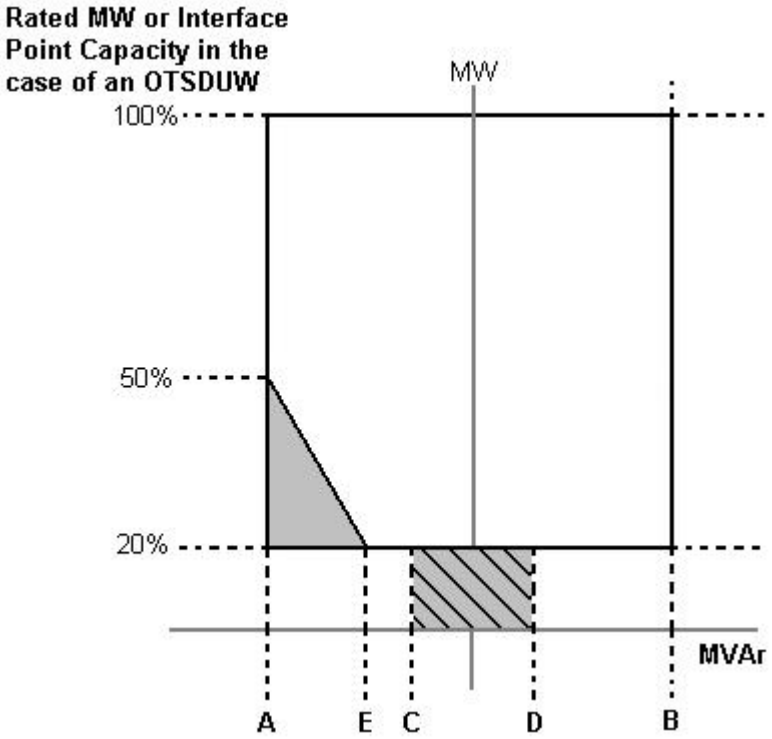
(i) have a **CEC** which has been increased above **Rated MW** (or the **CEC** of the **CCGT module** has increased above the sum of the **Rated MW** of the **Generating Units** compromising the **CCGT module**), and such increase takes effect after 1st May 2009, the minimum lagging **Reactive Power** capability at the terminals of the **Onshore Synchronous Generating Unit(s)** must be 0.9 **Power Factor** at all **Active Power** output levels in excess of **Rated MW**. Further, the **User** shall comply with the provisions of and any instructions given pursuant to BC1.8 and the relevant **Bilateral Agreement**; or

(ii) have a **CEC** in excess of **Rated MW** (or the **CEC** of the **CCGT module** exceeds the sum of **Rated MW** of the **Generating Units** comprising the **CCGT module**) and a **Completion Date** before 1st May 2009, alternative provisions relating to **Reactive Power** capability may be specified in the **Bilateral Agreement** and where this is the case such provisions must be complied with.

The short circuit ratio of **Onshore Synchronous Generating Units** with an **Apparent Power** rating of less than 1600MVA shall be not less than 0.5. The short circuit ratio of **Onshore Synchronous Generating Units** with a rated **Apparent Power** of 1600MVA or above shall be not less than 0.4.

(b) Subject to paragraph (c) below, all **Onshore Non-Synchronous Generating Units**, **Onshore DC Converters** and **Onshore Power Park Modules** must be capable of maintaining zero transfer of **Reactive Power** at the **Onshore Grid Entry Point** (or **User System Entry Point** if **Embedded**) at all **Active Power** output levels under steady state voltage conditions. For **Onshore Non-Synchronous Generating Units** and **Onshore Power Park Modules** the steady state tolerance on **Reactive Power** transfer to and from the **National Electricity Transmission System** expressed in MVAr shall be no greater than 5% of the **Rated MW**. For **Onshore DC Converters** the steady state tolerance on **Reactive Power** transfer to and from the **National Electricity Transmission System** shall be specified in the **Bilateral Agreement**.

(c) Subject to the provisions of CC.6.3.2(d) below, all **Onshore Non-Synchronous Generating Units**, **Onshore DC Converters** (excluding current source technology) and **Onshore Power Park Modules** (excluding those connected to the **Total System** by a current source **Onshore DC Converter**) and **OTSDUW Plant and Apparatus** at the **Interface Point** with a **Completion Date** on or after 1 January 2006 must be capable of supplying **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus** at any point between the limits 0.95 **Power Factor** lagging and 0.95 **Power Factor** leading at the **Onshore Grid Entry Point** in England and Wales or **Interface Point** in the case of **OTSDUW Plant and Apparatus** or at the HV side of the 33/132kV or 33/275kV or 33/400kV transformer for **Generators** directly connected to the **Onshore Transmission System** in Scotland (or **User System Entry Point** if **Embedded**). With all **Plant** in service, the **Reactive Power** limits defined at **Rated MW** or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus** at Lagging **Power Factor** will apply at all **Active Power** output levels above 20% of the **Rated MW** or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus** output as defined in Figure 1. With all **Plant** in service, the **Reactive Power** limits defined at **Rated MW** at Leading **Power Factor** will apply at all **Active Power** output levels above 50% of the **Rated MW** output as defined in Figure 1. With all **Plant** in service, the **Reactive Power** limits will reduce linearly below 50% **Active Power** output as shown in Figure 1 unless the requirement to maintain the **Reactive Power** limits defined at **Rated MW** or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus** at Leading **Power Factor** down to 20% **Active Power** output is specified in the **Bilateral Agreement**. These **Reactive Power** limits will be reduced pro rata to the amount of **Plant** in service.



Point A is equivalent (in MVAr) to:	0.95 leading **Power Factor** at **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus**
Point B is equivalent (in MVAr) to:	0.95 lagging **Power Factor** at **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus**
Point C is equivalent (in MVAr) to:	-5% of **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus**
Point D is equivalent (in MVAr) to	+5% of **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus**
Point E is equivalent (in MVAr) to:	-12% of **Rated MW** output or **Interface Point Capacity** in the case of **OTSDUW Plant and Apparatus**

Figure 1

(d) All **Onshore Non-Synchronous Generating Units** and **Onshore Power Park Modules** in Scotland with a **Completion Date** after 1 April 2005 and before 1 January 2006 must be capable of supplying **Rated MW** at the range of power factors either:-

(i) from 0.95 lead to 0.95 lag as illustrated in Figure 1 at the **User System Entry Point** for **Embedded Generators** or at the HV side of the 33/132kV or 33/275kV or 33/400kV transformer for **Generators** directly connected to the **Onshore Transmission System**. With all **Plant** in service, the **Reactive Power** limits defined at **Rated MW** will apply at all **Active Power** output levels above 20% of the **Rated MW** output as defined in Figure 1. These **Reactive Power** limits will be reduced pro rata to the amount of **Plant** in service, or

(ii) from 0.95 lead to 0.90 lag at the **Onshore Non-Synchronous Generating Unit** (including **Power Park Unit**) terminals. For the avoidance of doubt **Generators** complying with this option (ii) are not required to comply with CC.6.3.2(b).

(e) The short circuit ratio of **Offshore Synchronous Generating Units** at a **Large Power Station** shall be not less than 0.5. At a **Large Power Station** all **Offshore Synchronous Generating Units**, **Offshore Non-Synchronous Generating Units**, **Offshore DC Converters** and **Offshore Power Park Modules** must be capable of maintaining:

(i) zero transfer of **Reactive Power** at the **Offshore Grid Entry Point** for all **Generators** with an **Offshore Grid Entry Point** at the **LV Side of the Offshore Platform** at all **Active Power** output levels under steady state voltage conditions. The steady state tolerance on **Reactive Power** transfer to and from an **Offshore Transmission System** expressed in MVAr shall be no greater than 5% of the **Rated MW**, or

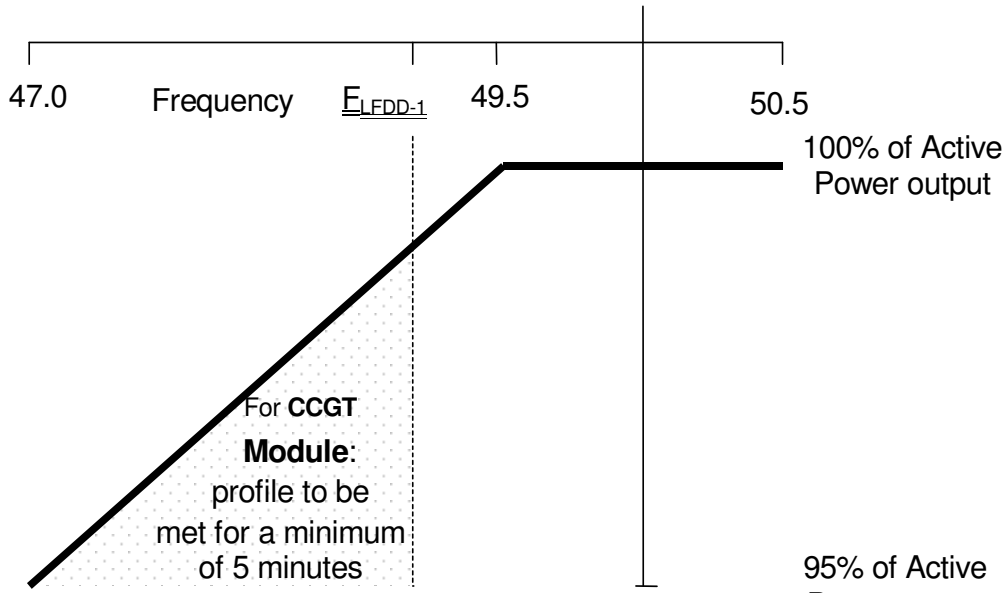
(ii) a transfer of **Reactive Power** at the **Offshore Grid Entry Point** at a value specified in the **Bilateral Agreement** that will be equivalent to zero at the **LV Side of the Offshore Platform**. In addition, the steady state tolerance on **Reactive Power** transfer to and from an **Offshore Transmission System** expressed in MVAr at the **LV Side of the Offshore Platform** shall be no greater than 5% of the **Rated MW**, or

(iii) the **Reactive Power** capability (within associated steady state tolerance) specified in the **Bilateral Agreement** if any alternative has been agreed with the **Generator**, **Offshore Transmission Licensee** and **NGET**.

CC.6.3.3 Each **Generating Unit**, **DC Converter** (including an **OTSDUW DC Converter**), **Power Park Module** and/or **CCGT Module** must be capable of:

(a) continuously maintaining constant **Active Power** output for **System Frequency** changes within the range 50.5 to 49.5 Hz; and

(b) (subject to the provisions of CC.6.1.3) maintaining its **Active Power** output at a level not lower than the figure determined by the linear relationship shown in Figure 2 for **System Frequency** changes within the range 49.5 to 47 Hz, such that if the **System Frequency** drops to 47 Hz the **Active Power** output does not decrease by more than 5%. In the case of a **CCGT Module**, the above requirement shall be retained down to the **Low Frequency Relay** trip setting of 48.8 Hz, which reflects the first stage of the Automatic Low **Frequency Demand Disconnection** scheme notified to **Network Operators** under OC6.6.2. For **System Frequency** below that setting, the existing requirement shall be retained for a minimum period of 5 minutes while **System Frequency** remains below that setting, and special measure(s) that may be required to meet this requirement shall be kept in service during this period. After that 5 minutes period, if **System Frequency** remains below that setting, the special measure(s) must be discontinued if there is a materially increased risk of the **Gas Turbine** tripping. The need for special measure(s) is linked to the inherent **Gas Turbine Active Power** output reduction caused by reduced shaft speed due to falling **System Frequency**.



Note: **Frequency** F_{LFDD-1} is the relay trip setting of the first stage of the Automatic Low **Frequency Demand Disconnection** Scheme

Figure 2

(c) For the avoidance of doubt in the case of a **Generating Unit** or **Power Park Module** (or **OTSDUW DC Converters** at the **Interface Point**) using an **Intermittent Power Source** where the mechanical power input will not be constant over time, the requirement is that the **Active Power** output shall be independent of **System Frequency** under (a) above and should not drop with **System Frequency** by greater than the amount specified in (b) above.

(d) A **DC Converter Station** must be capable of maintaining its **Active Power** input (i.e. when operating in a mode analogous to **Demand**) from the **National Electricity Transmission System** (or **User System** in the case of an **Embedded DC Converter Station**) at a level not greater than the figure determined by the linear relationship shown in Figure 3 for **System Frequency** changes within the range 49.5 to 47 Hz, such that if the **System Frequency** drops to 47.8 Hz the **Active Power** input decreases by more than 60%.

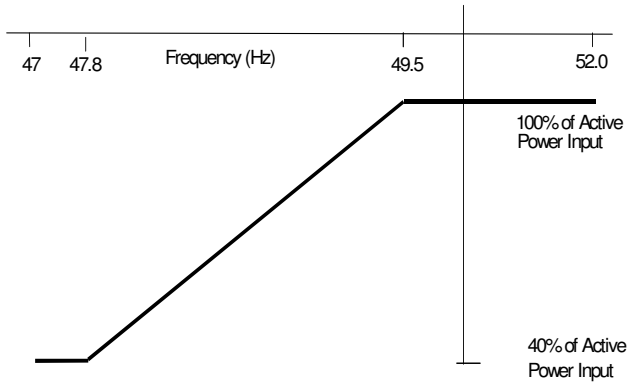


Figure 3

(e) At a **Large Power Station**, **in** the case of an **Offshore Generating Unit**, **Offshore Power Park Module** and **Offshore DC Converter**, and **OTSDUW DC Converter** the **Generator** shall comply with the requirements of CC.6.3.3. **Generators** should be aware that Section K of the **STC** places requirements on **Offshore Transmission Licensees** which utilise a **Transmission DC Converter** as part of their **Offshore Transmission System** to make appropriate provisions to enable **Generators** to fulfil their obligations.

(f) In the case of an **OTSDUW DC Converter** the **OTDUW Plant** and **Apparatus** shall provide a continuous signal indicating the real time frequency measured at the **Interface Point** to the **Offshore Grid Entry Point**.

CC.6.3.4 At the **Grid Entry Point** and in the case of **OTSDUW**, **Interface Point** the **Active Power** output or, in the case of an **OTSDUW Active Power** transfer, under steady state conditions of any **Generating Unit**, **DC Converter**, or **Power Park Module** directly connected to the **National Electricity Transmission System** or **OTSDUW DC Converter** at an **Interface Point** should not be affected by voltage changes in the normal operating range specified in paragraph CC.6.1.4 by more than the change in **Active Power** losses at reduced or increased voltage. In addition:-

(a) For any **Onshore Generating Unit**, **Onshore DC Converter** and **Onshore Power Park Module** or **OTSDUW** the **Reactive Power** output under steady state conditions should be fully available within the voltage range ±5% at 400kV, 275kV and 132kV and lower voltages, except for an **Onshore Power Park Module** or **Onshore Non-Synchronous Generating Unit** if **Embedded** at 33kV and below (or directly connected to the **Onshore Transmission System** at 33kV and below) where the requirement shown in Figure 4 applies.

(b) At a **Large Power Station**, **in** the case of an **Offshore Generating Unit**, **Offshore DC Converter** and **Offshore Power Park Module** where an alternative reactive capability has been agreed with the **Generator**, as specified in CC.6.3.2(e) (iii), the voltage / **Reactive Power** requirement shall be specified in the **Bilateral Agreement**. The **Reactive Power** output under steady state conditions shall be fully available within the voltage range ±5% at 400kV, 275kV and 132kV and lower voltages.

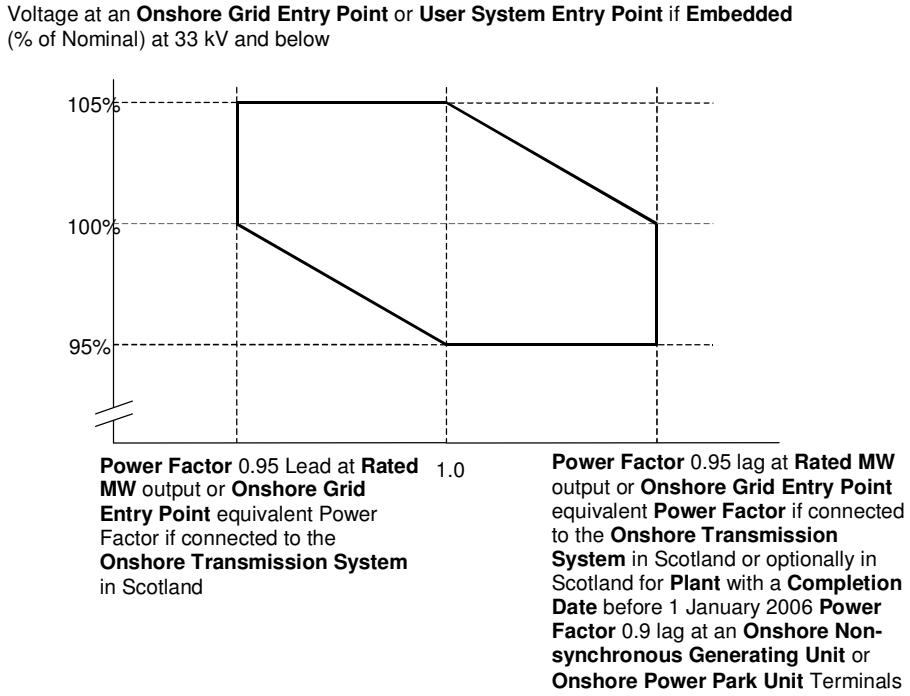


Figure 4

CC.6.3.5 It is an essential requirement that the **National Electricity Transmission System** must incorporate a **Black Start Capability**. This will be achieved by agreeing a **Black Start Capability** at a number of strategically located **Power Stations**. For each **Power Station NGET** will state in the **Bilateral Agreement** whether or not a **Black Start Capability** is required.

Control Arrangements

CC.6.3.6 (a) Each:

(i) **Offshore Generating Unit** in a **Large Power Station** or **Onshore Generating Unit**; or,
(ii) **Onshore DC Converter** with a **Completion Date** on or after 1 April 2005 or **Offshore DC Converter** at a **Large Power Station**; or,
(iii) **Onshore Power Park Module** in England and Wales with a **Completion Date** on or after 1 January 2006; or,
(iv) **Onshore Power Park Module** in operation in Scotland on or after 1 January 2006 (with a **Completion Date** after 1 July 2004 and in a **Power Station** with a **Registered Capacity** of 50MW or more); or,
(v) **Offshore Power Park Module** in a **Large Power Station** with a **Registered Capacity** of 50MW or more; or,
(vi) **OTSDUW DC Converter** at an **Interface Point**,

must be capable of contributing to **Frequency** control by continuous modulation of **Active Power** supplied to the **National Electricity Transmission System** or the **User System** in which it is **Embedded**.

(b) Each:

(i) **Onshore Generating Unit**; or,
(ii) **Onshore DC Converter** (with a **Completion Date** on or after 1 April 2005 excluding current source technologies); or

(iii) **Onshore Power Park Module** in England and Wales with a **Completion Date** on or after 1 January 2006; or,

(iv) **Onshore Power Park Module** in Scotland irrespective of **Completion Date**; or,

(v) **Offshore Generating Unit** at a **Large Power Station**, **Offshore DC Converter** at a **Large Power Station** or **Offshore Power Park Module** at a **Large Power Station** which provides a reactive range beyond the minimum requirements specified in CC.6.3.2(e) (iii); or,

(vi) the **OTSDUW Plant and Apparatus** at a **Transmission Interface Point**

must be capable of contributing to voltage control by continuous changes to the **Reactive Power** supplied to the **National Electricity Transmission System** or the **User System** in which it is **Embedded**.

CC.6.3.7 (a) Each **Generating Unit**, **DC Converter** or **Power Park Module** (excluding **Onshore Power Park Modules** in Scotland with a **Completion Date** before 1 July 2004 or **Onshore Power Park Modules** in a **Power Station** in Scotland with a **Registered Capacity** less than 50MW or **Offshore Power Park Modules** in a **Large Power Station** located **Offshore** with a **Registered Capacity** less than 50MW) must be fitted with a fast acting proportional **Frequency** control device (or turbine speed governor) and unit load controller or equivalent control device to provide **Frequency** response under normal operational conditions in accordance with **Balancing Code 3** (**BC3**). In the case of a **Power Park Module** the **Frequency** or speed control device(s) may be on the **Power Park Module** or on each individual **Power Park Unit** or be a combination of both. The **Frequency** control device(s) (or speed governor(s)) must be designed and operated to the appropriate:

(i) **European Specification**; or

(ii) in the absence of a relevant **European Specification**, such other standard which is in common use within the European Community (which may include a manufacturer specification);

as at the time when the installation of which it forms part was designed or (in the case of modification or alteration to the **Frequency** control device (or turbine speed governor)) when the modification or alteration was designed.

The **European Specification** or other standard utilised in accordance with sub-paragraph CC.6.3.7 (a) (ii) will be notified to **NGET** by the **Generator** or **DC Converter Station** owner or, in the case of an **Embedded Medium Power Station** not subject to a **Bilateral Agreement** or **Embedded DC Converter Station** not subject to a **Bilateral Agreement**, the relevant **Network Operator**:

(i) as part of the application for a **Bilateral Agreement**; or

(ii) as part of the application for a varied **Bilateral Agreement**; or

(iii) in the case of an **Embedded Development**, within 28 days of entry into the **Embedded Development Agreement** (or such later time as agreed with **NGET**); or

(iv) as soon as possible prior to any modification or alteration to the **Frequency** control device (or governor); and

(b) The **Frequency** control device (or speed governor) in co-ordination with other control devices must control the **Generating Unit**, **DC Converter** or **Power Park Module Active Power Output** with stability over the entire operating range of the **Generating Unit**, **DC Converter** or **Power Park Module**; and

(c) The **Frequency** control device (or speed governor) must meet the following minimum requirements:

(i) Where a **Generating Unit**, **DC Converter** or **Power Park Module** becomes isolated from the rest of the **Total System** but is still supplying **Customers**, the **Frequency** control device (or speed governor) must also be able to control **System Frequency** below 52Hz unless this causes the **Generating Unit**, **DC Converter** or **Power Park Module** to operate below its **Designed Minimum Operating Level** when it is possible that it may, as detailed in BC 3.7.3, trip after a time. For the avoidance of doubt the **Generating Unit**, **DC Converter** or **Power Park Module** is only required to operate within the **System Frequency** range 47 - 52 Hz as defined in CC.6.1.3.;

(ii) the **Frequency** control device (or speed governor) must be capable of being set so that it operates with an overall speed **Droop** of between 3% and 5%. For the avoidance of doubt, in the case of a **Power Park Module** the speed **Droop** should be equivalent of a fixed setting between 3% and 5% applied to each **Power Park Unit** in service;

(iii) in the case of all **Generating Units**, **DC Converter** or **Power Park Module** other than the **Steam Unit** within a **CCGT Module** the **Frequency** control device (or speed governor) deadband should be no greater than 0.03Hz (for the avoidance of doubt, ±0.015Hz). In the case of the **Steam Unit** within a **CCGT Module**, the speed governor deadband should be set to an appropriate value consistent with the requirements of CC.6.3.7(c)(i) and the requirements of BC3.7.2 for the provision of **Limited High Frequency Response**;

For the avoidance of doubt, the minimum requirements in (ii) and (iii) for the provision of **System Ancillary Services** do not restrict the negotiation of **Commercial Ancillary Services** between **NGET** and the **User** using other parameters; and

(d) A facility to modify, so as to fulfil the requirements of the **Balancing Codes**, the **Target Frequency** setting either continuously or in a maximum of 0.05 Hz steps over at least the range 50 ±0.1 Hz should be provided in the unit load controller or equivalent device.

(e) (i) Each **Onshore Generating Unit** and/or **CCGT Module** which has a **Completion Date** after 1 January 2001 in England and Wales, and after 1 April 2005 in Scotland, must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(ii) Each **DC Converter** at a **DC Converter Station** which has a **Completion Date** on or after 1 April 2005 and each **Offshore DC Converter** at a **Large Power Station** must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(iii) Each **Onshore Power Park Module** in operation in England and Wales with a **Completion Date** on or after 1 January 2006 must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(iv) Each **Onshore Power Park Module** in operation on or after 1 January 2006 in Scotland (with a **Completion Date** on or after 1 April 2005 and a **Registered Capacity** of 50MW or more) must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(v) Each **Offshore Generating Unit** in a **Large Power Station** must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(vi) Each **Offshore Power Park Module** in a **Large Power Station** with a **Registered Capacity** of 50 MW or greater, must be capable of meeting the minimum **Frequency** response requirement profile subject to and in accordance with the provisions of Appendix 3.

(vii) Subject to the requirements of CC.6.3.7(e), **Offshore Generating Units** at a **Large Power Station**, **Offshore Power Park Modules** at a **Large Power Station** and **Offshore DC Converters** in a **Large Power Station** shall comply with the requirements of CC.6.3.7. **Generators** should be aware that Section K of the **STC** places requirements on **Offshore Transmission Licensees** which utilise a **Transmission DC Converter** as part of their **Offshore Transmission System** to make appropriate provisions to enable **Generators** to fulfil their obligations.

(viii) Each **OTSDUW DC Converter** must be capable of providing a continuous signal indicating the real time frequency measured at the **Interface Point** to the **Offshore Grid Entry Point**.

(f) For the avoidance of doubt, the requirements of Appendix 3 do not apply to:

(i) **Generating Units** and/or **CCGT Modules** which have a **Completion Date** before 1 January 2001 in England and Wales, and before 1 April 2005 in Scotland, for whom the remaining requirements of this clause CC.6.3.7 shall continue to apply unchanged: or

(ii) **DC Converters** at a **DC Converter Station** which have a **Completion Date** before 1 April 2005; or

(iii) **Onshore Power Park Modules** in England and Wales with a **Completion Date** before 1 January 2006 for whom only the requirements of **Limited Frequency Sensitive Mode** (BC.3.5.2) operation shall apply; or

(iv) **Onshore Power Park Modules** in operation in Scotland before 1 January 2006 for whom only the requirements of **Limited Frequency Sensitive Mode** (BC.3.5.2) operation shall apply; or

(v) **Onshore Power Park Modules** in operation after 1 January 2006 in Scotland which have a **Completion Date** before 1 April 2005 for whom the remaining requirements of this clause CC.6.3.7 shall continue to apply unchanged; or

(vi) **Offshore Power Park Modules** which are in a **Large Power Station** with a **Registered Capacity** less than 50MW for whom only the requirements of **Limited Frequency Sensitive Mode** (BC.3.5.2) operation shall apply; or

(vii) **OTSDUW DC Converters** where the **Interface Point Capacity** is less than 50MW.

Excitation and Voltage Control Performance Requirements

CC.6.3.8 (a) Excitation and voltage control performance requirements applicable to **Onshore Generating Units**, **Onshore Power Park Modules** and **Onshore DC Converters** and **OTSDUW Plant and Apparatus**.

(i) A continuously-acting automatic excitation control system is required to provide constant terminal voltage control of the **Onshore Synchronous Generating Unit** without instability over the entire operating range of the **Onshore Generating Unit**.

(ii) In respect of **Onshore Synchronous Generating Units** with a **Completion Date** before 1 January 2009, the requirements for excitation control facilities, including **Power System Stabilisers**, where in **NGET's** view these are necessary for system reasons, will be specified in the **Bilateral Agreement**. If any **Modification** to the excitation control facilities of such **Onshore Synchronous Generating Units** is made on or after 1 January 2009 the requirements that shall apply may be specified in the **Bilateral Agreement** as varied. To the extent that the **Bilateral Agreement** does not specify, the requirements given or referred to in CC.A.6 shall apply. The performance requirements for a continuously acting automatic excitation control system that shall be complied with by the **User** in respect of such **Onshore Synchronous Generating Units** with a **Completion Date** on or after 1 January 2009 are given or referred to in CC.A.6. Reference is made to on-load commissioning witnessed by **NGET** in BC2.11.2.

(iii) In the case of an **Onshore Non-Synchronous Generating Unit**, **Onshore DC Converter** or **Onshore Power Park Module** or **OTSDUW Plant and Apparatus** at the **Interface Point** a continuously-acting automatic control system is required to provide control of the voltage (or zero transfer of **Reactive Power** as applicable to CC.6.3.2) at the **Onshore Grid Entry Point** or **User System Entry Point** or in the case of **OTSDUW Plant and Apparatus at the Interface Point** without instability over the entire operating range of the **Onshore Non-Synchronous Generating Unit**, **Onshore DC Converter** or **Onshore Power Park Module**. Any **Plant** or **Apparatus** used in the provisions of such voltage control within an **Onshore Power Park Module** may be located at the **Power Park Unit** terminals, an appropriate intermediate busbar or the **Connection Point**. **OTSDUW Plant and Apparatus** used in the provision of such voltage control may be located at the **Offshore Grid Entry Point**, or an appropriate intermediate busbar at the **Interface Point**. In the case of an **Onshore Power Park Module** in Scotland with a **Completion Date** before 1 January 2009, voltage control may be at the **Power Park Unit** terminals, an appropriate intermediate busbar or the **Connection Point** as specified in the **Bilateral Agreement**. When operating below **20% Rated MW** the automatic control system may continue to provide voltage control utilising any available reactive capability. If voltage control is not being

provided the automatic control system shall be designed to ensure a smooth transition between the shaded area bound by CD and the non shaded area bound by AB in Figure 1 of CC6.3.2 (c).

(iv) The performance requirements for a continuously acting automatic voltage control system in respect of **Onshore Power Park Modules**, **Onshore Non-Synchronous Generating Units** and **Onshore DC Converters** with a **Completion Date** before 1 January 2009 will be specified in the **Bilateral Agreement**. If any **Modification** to the continuously acting automatic voltage control system of such **Onshore Power Park Modules**, **Onshore Non-Synchronous Generating Units** and **Onshore DC Converters** is made on or after 1 January 2009 the requirements that shall apply may be specified in the **Bilateral Agreement** as varied. To the extent that the **Bilateral Agreement** does not specify, the requirements given or referred to in CC.A.7 shall apply. The performance requirements for a continuously acting automatic voltage control system that shall be complied with by the **User** in respect of **Onshore Power Park Modules**, **Onshore Non-Synchronous Generating Units** and **Onshore DC Converters** or **OTSDUW Plant and Apparatus** at the **Interface Point** with a **Completion Date** on or after 1 January 2009 are given or referred to in CC.A.7.

(v) In particular, other control facilities, including constant **Reactive Power** output control modes and constant **Power Factor** control modes (but excluding VAR limiters) are not required. However, if present in the excitation or voltage control system they will be disabled unless the **Bilateral Agreement** records otherwise. Operation of such control facilities will be in accordance with the provisions contained in BC2.

(b) Excitation and voltage control performance requirements applicable to **Offshore Generating Units** at a **Large Power Station**, **Offshore Power Park Modules** at a **Large Power Station** and **Offshore DC Converters** at a **Large Power Station**.

A continuously acting automatic control system is required to provide either:-

(i) control of **Reactive Power** (as specified in CC.6.3.2(e) (i) (ii)) at the **Offshore Grid Entry Point** without instability over the entire operating range of the **Offshore Generating Unit**, **Offshore DC Converter** or **Offshore Power Park Module**. The performance requirements for this automatic control system will be specified in the **Bilateral Agreement** or;

(ii) where an alternative reactive capability has been specified in the **Bilateral Agreement**, in accordance with CC.6.3.2 (e) (iii), the **Offshore Generating Unit**, **Offshore Power Park Module** or **Offshore DC Converter** will be required to control voltage and / or **Reactive Power** without instability over the entire operating range of the **Offshore Generating Unit**, **Offshore Power Park Module** or **Offshore DC Converter**. The performance requirements of the control system will be specified in the **Bilateral Agreement**.

In addition to CC.6.3.8(b) (i) and (ii) the requirements for excitation control facilities, including **Power System Stabilisers**, where in **NGET's** view these are necessary for system reasons, will be specified in the **Bilateral**

Agreement. Reference is made to onload commissioning witnessed by **NGET** in BC2.11.2.

Steady state **Load** Inaccuracies

CC.6.3.9 The standard deviation of **Load** error at steady state **Load** over a 30 minute period must not exceed 2.5 per cent of a **Genset's Registered Capacity**. Where a **Genset** is instructed to **Frequency** sensitive operation, allowance will be made in determining whether there has been an error according to the governor droop characteristic registered under the **PC**.

For the avoidance of doubt in the case of a **Power Park Module** allowance will be made for the full variation of mechanical power output.

Negative Phase Sequence Loadings

CC.6.3.10 In addition to meeting the conditions specified in CC.6.1.5(b), each **Synchronous Generating Unit** will be required to withstand, without tripping, the negative phase sequence loading incurred by clearance of a close-up phase-to-phase fault, by **System Back-Up Protection** on the **National Electricity Transmission System** or **User System** located **Onshore** in which it is **Embedded**.

Neutral **Earthing**

CC.6.3.11 At nominal **System** voltages of 132kV and above the higher voltage windings of a transformer of a **Generating Unit**, **DC Converter** or **Power Park Module** or transformer resulting from **OTSDUW** must be star connected with the star point suitable for connection to earth. The earthing and lower voltage winding arrangement shall be such as to ensure that the **Earth Fault Factor** requirement of paragraph CC.6.2.1.1 (b) will be met on the **National Electricity Transmission System** at nominal **System** voltages of 132kV and above.

Frequency Sensitive Relays

CC.6.3.12 As stated in CC.6.1.3, the **System Frequency** could rise to 52Hz or fall to 47Hz. Each **Generating Unit**, **DC Converter**, **OTSDUW Plant and Apparatus**, **Power Park** Module or any constituent element must continue to operate within this **Frequency** range for at least the periods of time given in CC.6.1.3 unless **NGET** has agreed to any **Frequency**-level relays and/or rate-of-change-of-**Frequency** relays which will trip such **Generating Unit**, **DC Converter**, **OTSDUW Plant and Apparatus Power Park Module** and any constituent element within this **Frequency** range, under the **Bilateral Agreement**.

CC.6.3.13 **Generators** (including in the respect of **OTSDUW Plant and Apparatus**) and **DC Converter Station** owners will be responsible for protecting all their **Generating Units** (and **OTSDUW Plant and Apparatus**), **DC Converters** or **Power Park Modules** against damage should **Frequency** excursions outside the range 52Hz to 47Hz ever occur. Should such excursions occur, it is up to the **Generator** or **DC Converter Station** owner to decide whether to disconnect his **Apparatus** for reasons of safety of **Apparatus**, **Plant** and/or personnel.

CC.6.3.14 It may be agreed in the **Bilateral Agreement** that a **Genset** shall have a **Fast-Start Capability**. Such **Gensets** may be used for **Operating Reserve** and their **Start-Up** may be initiated by **Frequency**-level relays with settings in the range 49Hz to 50Hz as specified pursuant to OC2.

CC.6.3.15 Fault Ride Through

This section sets out the fault ride through requirements on **Generating Units**, **Power Park Modules** and **DC Converters** and **OTSDUW Plant and Apparatus**. **Onshore Generating Units**, **Onshore Power Park Modules** and **Onshore DC Converters** (including **Embedded Medium Power Stations** and **Embedded DC Converter Stations** not subject to a **Bilateral Agreement** and with an **Onshore User System Entry Point** (irrespective of whether they are located **Onshore** or **Offshore**)) and **OTSDUW Plant and Apparatus** are required to operate through **System** faults and disturbances as defined in CC.6.3.15.1 (a), CC.6.3.15.1 (b) and CC.6.3.15.3. **Offshore Generating Units** at a **Large Power Station, Offshore Power Park Modules** at a **Large Power Station** and **Offshore DC Converters** at a **Large Power Station** shall have the option of meeting either:-

i) CC.6.3.15.1 (a), CC.6.3.15.1 (b) and CC.6.3.15.3, or:-
ii) CC.6.3.15.2 (a), CC.6.3.15.2 (b) and CC.6.3.15.3

Offshore Generators and **Offshore DC Converter** owners, should notify **NGET** which option they wish to select within 28 days (or such longer period as **NGET** may agree, in any event this being no later than 3 months before the **Completion Date** of the offer for a final **CUSC Contract** which would be made following the appointment of the **Offshore Transmission Licensee**).

CC.6.3.15.1 Fault Ride through applicable to **Generating Units**, **Power Park Modules** and **DC Converters** and **OTSDUW Plant and Apparatus**

(a) Short circuit faults on the **Onshore Transmission System** (which may include an **Interface Point**) at **Supergrid Voltage** up to 140ms in duration.

(i) Each **Generating Unit**, **DC Converter**, or **Power Park Module** and any constituent **Power Park Unit** thereof and **OTSDUW Plant and Apparatus** shall remain transiently stable and connected to the **System** without tripping of any **Generating Unit**, **DC Converter** or **Power Park Module** and / or any constituent **Power Park Unit** and **OTSDUW Plant and Apparatus**, for a close-up solid three-phase short circuit fault or any unbalanced short circuit fault on the **Onshore Transmission System** (including in respect of **OTSDUW Plant and Apparatus**, the **Interface Point**) operating at **Supergrid Voltages** for a total fault clearance time of up to 140 ms. A solid three-phase or unbalanced earthed fault results in zero voltage on the faulted phase(s) at the point of fault. The duration of zero voltage is dependent on local protection and circuit breaker operating times. This duration and the fault clearance times will be specified in the **Bilateral Agreement**. Following fault clearance, recovery of the **Supergrid Voltage** on the **Onshore Transmission System** to 90% may take longer than 140ms as illustrated in Appendix 4A Figures CC.A.4A.1 (a) and (b). It should be noted that in the case of an **Offshore Generating Unit**, **Offshore DC Converter** or **Offshore Power Park Module** (including any **Offshore Power Park Unit** thereof) which is connected to an **Offshore Transmission System** which includes a **Transmission DC Converter** as part of that **Offshore Transmission System**, the **Offshore Grid Entry Point** voltage may not indicate the presence of a fault on the **Onshore Transmission System**. The fault will affect the level of **Active Power** that can be transferred to the **Onshore Transmission System** and therefore subject the **Offshore Generating Unit**, **Offshore DC Converter** or **Offshore Power Park Module** (including any **Offshore Power Park Unit** thereof) to a load rejection.

(ii) Each **Generating Unit** or **Power Park Module** and **OTSDUW Plant and Apparatus**, shall be designed such that upon both clearance of the fault on the **Onshore Transmission System** as detailed in CC.6.3.15.1 (a) (i) and within 0.5 seconds of the restoration of the **voltage at the Onshore Grid Entry Point** (for **Onshore Generating Units** and **Onshore Power Park Modules** and **OTSDUW Plant and Apparatus**) or **Interface Point** (for **Offshore Generating Units** and **Offshore Power Park Modules**) to the minimum levels specified in CC.6.1.4 (or within 0.5 seconds of restoration of the voltage at the **User System Entry Point** to 90% of nominal or greater if **Embedded**), **Active Power** output or in the case of **OTSDUW Plant and Apparatus**, **Active Power** transfer capability, shall be restored to at least 90% of the level available immediately before the fault. Once the **Active Power** output or in the case of **OTSDUW Plant and Apparatus Active Power** transfer capability has been restored to the required level, **Active Power** oscillations shall be acceptable provided that:

- the total **Active Energy** delivered during the period of the oscillations is at least that which would have been delivered if the **Active Power** was constant

- the oscillations are adequately damped

During the period of the fault as detailed in CC.6.3.15.1 (a) (i) for which the voltage at the **Grid Entry Point** (or **Interface Point** in the case of **OTSDUW Plant and Apparatus**) is outside the limits specified in CC.6.1.4, each **Generating Unit** or **Power Park Module** or **OTSDUW Plant and Apparatus** shall generate maximum reactive current without exceeding the transient rating limit of the **Generating Unit**, **OTSDUW Plant and Apparatus** or **Power Park Module** and / or any constituent **Power Park Unit**.

(iii) Each **DC Converter** shall be designed to meet the **Active Power** recovery characteristics (and **OTSDUW DC Converter** shall be designed to meet the **Active Power** transfer capability at the **Interface Point**) as specified in the **Bilateral Agreement** upon clearance of the fault on the **Onshore Transmission System** as detailed in CC.6.3.15.1 (a) (i).

(b) **Supergrid Voltage** dips on the **Onshore Transmission System** greater than 140ms in duration

In addition to the requirements of CC.6.3.15.1 (a) each **Generating Unit OTSDUW Plant and Apparatus**, each or **Power Park Module** and / or any constituent **Power Park Unit**, each with a **Completion Date** on or after the 1 April 2005 shall:

(i) remain transiently stable and connected to the **System** without tripping of any **Generating Unit**, **OTSDUW Plant and Apparatus**, or **Power Park Module** and / or any constituent **Power Park Unit**, for balanced **Supergrid Voltage** dips and associated durations on the **Onshore Transmission System** (which could be at the **Interface Point**) anywhere on or above the heavy black line shown in Figure 5. Appendix 4A and Figures CC.A.4A.3 (a), (b) and (c) provide an explanation and illustrations of Figure 5; and,

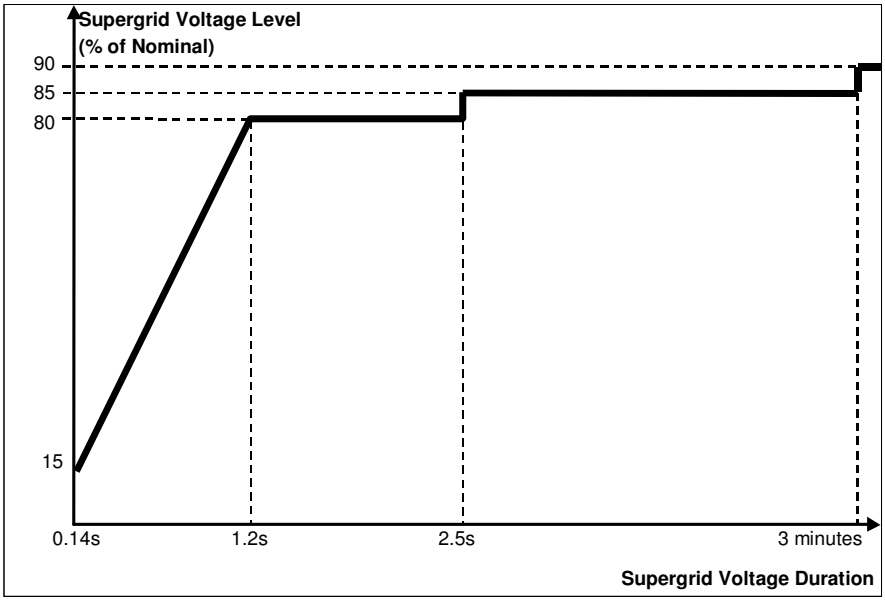


Figure 5

(ii) provide **Active Power** output or in the case of an **OTSDUW**, **Active Power** transfer capability, during **Supergrid Voltage** dips on the **Onshore Transmission System** as described in Figure 5, at least in proportion to the retained balanced voltage at the **Onshore Grid Entry Point** (for **Onshore Generating Units** and **Onshore Power Park Modules**) or **Interface Point** (for **Offshore Generating Units**, **OTSDUW Plant and Apparatus** and **Offshore Power Park Modules**) (or the retained balanced voltage at the **User System Entry Point** if **Embedded**) except in the case of a **Non-Synchronous Generating Unit** or **OTSDUW Plant and Apparatus** or **Power Park Module** where there has been a reduction in the **Intermittent Power Source** or in the case of **OTSDUW Active Power** transfer capability in the time range in Figure 5 that restricts the **Active Power** output or in the case of an **OTSDUW Active Power** transfer capability below this level and shall generate maximum reactive current (where the voltage at the **Grid Entry Point** or in the case of an **OTSDUW Plant and Apparatus** the **Interface Point** is outside the limits specified in CC.6.1.4) without exceeding the transient rating limits of the **Generating Unit**, **OTSDUW Plant and Apparatus** or **Power Park Module** and any constituent **Power Park Unit**; and,

(iii) restore **Active Power** output (or, in the case of **OTSDUW**, **Active Power** transfer capability), following **Supergrid Voltage** dips on the **Onshore Transmission System** as described in Figure 5, within 1 second of restoration of the voltage at the:-

Onshore Grid Entry Point for directly connected **Onshore Generating Units** and **Onshore Power Park Modules** or,
Interface Point for **Offshore Generating Units**, **OTSDUW Plant** and **Apparatus** and **Offshore Power Park Modules** or,
User System Entry Point for **Embedded Onshore Generating Units** and **Embedded Onshore Power Park Modules** or,
User System Entry Point for **Embedded Medium Power Stations** and **Embedded DC Converter Stations** not subject to a **Bilateral Agreement** and with an **Onshore User System Entry Point** (irrespective of whether they are located **Onshore** or **Offshore**)

to the minimum levels specified in CC.6.1.4 to at least 90% of the level available immediately before the occurrence of the dip except in the case of a **Non-Synchronous Generating Unit**, **OTSDUW Plant** and **Apparatus** or **Power Park Module** where there has been a reduction in the **Intermittent Power Source** in the time range in Figure 5 that restricts the **Active Power** output or, in the case of **OTSDUW**, **Active Power** transfer capability below this level. Once the **Active Power** output or, in the case of **OTSDUW**, **Active Power** transfer capability has been restored to the required level, **Active Power** oscillations shall be acceptable provided that:

- the total **Active Energy** delivered during the period of the oscillations is at least that which would have been delivered if the **Active Power** was constant

- the oscillations are adequately damped.

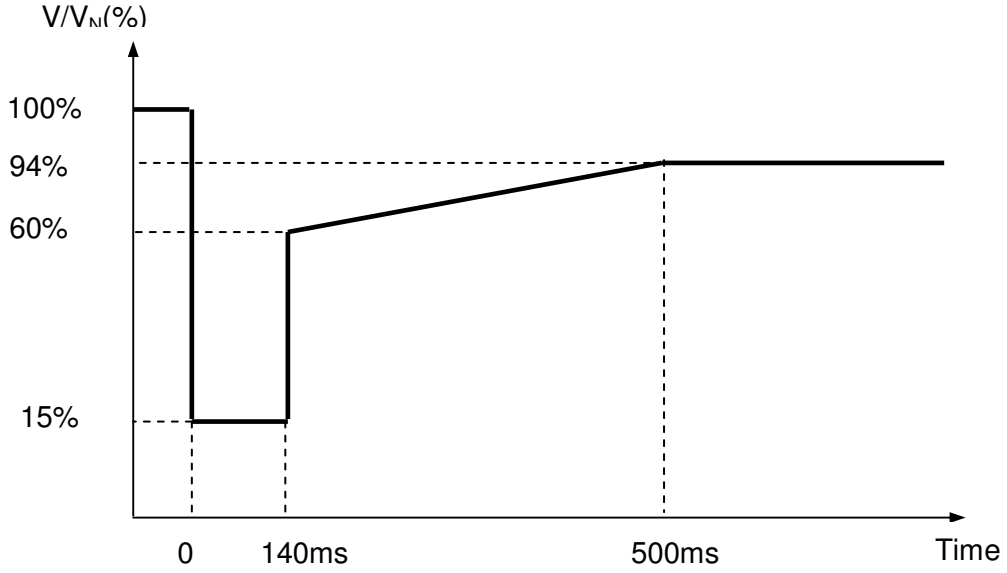
For the avoidance of doubt a balanced **Onshore Transmission System Supergrid Voltage** meets the requirements of CC.6.1.5 (b) and CC.6.1.6.

CC.6.3.15.2 Fault Ride Through applicable to **Offshore Generating Units** at a **Large Power Station**, **Offshore Power Park Modules** at a **Large Power Station** and **Offshore DC Converters** at a **Large Power Station** who choose to meet the fault ride through requirements at the **LV side of the Offshore Platform**

(a) Requirements on **Offshore Generating Units**, **Offshore Power Park Modules** and **Offshore DC Converters** to withstand voltage dips on the **LV Side of the Offshore Platform** for up to 140ms in duration as a result of faults and / or voltage dips on the **Onshore Transmission System** operating at **Supergrid Voltage**

(i) Each **Offshore Generating Unit**, **Offshore DC Converter**, or **Offshore Power Park Module** and any constituent **Power Park Unit** thereof shall remain transiently stable and connected to the **System** without tripping of any **Offshore Generating Unit**, or **Offshore DC Converter** or **Offshore Power Park Module** and / or any constituent **Power Park Unit**, for any balanced or unbalanced voltage dips on the **LV Side of the Offshore Platform** whose profile is anywhere on or above the heavy black line shown in Figure 6. For the avoidance of doubt, the profile beyond 140ms in Figure 6 shows the minimum recovery in voltage that will be seen by the generator following clearance of the fault at 140ms. Appendix 4B and Figures CC.A.4B.2 (a) and (b) provide further illustration of the voltage recovery profile that may be seen. It should be noted that in the case of an **Offshore Generating Unit**, **Offshore DC Converter** or **Offshore Power Park Module** (including any **Offshore Power Park Unit** thereof) which is connected to an **Offshore Transmission System** which includes a **Transmission DC Converter** as part of that **Offshore Transmission System**, the **Offshore Grid Entry Point** voltage may not indicate the presence of a fault on the **Onshore Transmission System**. The voltage dip will affect the level of **Active Power** that can be transferred to the **Onshore Transmission System** and therefore subject the **Offshore Generating Unit**, **Offshore DC Converter** or **Offshore Power**

Park Module (including any **Offshore Power Park Unit** thereof) to a load rejection.



V/V_N is the ratio of the actual voltage on one or more phases at the **LV Side of the Offshore Platform** to the nominal voltage of the **LV Side of the Offshore Platform**.

Figure 6

(ii) Each **Offshore Generating Unit**, or **Offshore Power Park Module** and any constituent **Power Park Unit** thereof shall provide **Active Power** output, during voltage dips on the **LV Side of the Offshore Platform** as described in Figure 6, at least in proportion to the retained voltage at the **LV Side of the Offshore Platform** except in the case of an **Offshore Non-Synchronous Generating Unit** or **Offshore Power Park Module** where there has been a reduction in the **Intermittent Power Source** in the time range in Figure 6 that restricts the **Active Power** output below this level and shall generate maximum reactive current without exceeding the transient rating limits of the **Offshore Generating Unit** or **Offshore Power Park Module** and any constituent **Power Park Unit**. Once the **Active Power** output has been restored to the required level, **Active Power** oscillations shall be acceptable provided that:

- the total **Active Energy** delivered during the period of the oscillations is at least that which would have been delivered if the **Active Power** was constant

- the oscillations are adequately damped

and;

(iii) Each **Offshore DC Converter** shall be designed to meet the **Active Power** recovery characteristics as specified in the **Bilateral Agreement** upon restoration of the voltage at the **LV Side of the Offshore Platform**.

(b) Requirements of **Offshore Generating Units**, **Offshore Power Park Modules** to withstand voltage dips on the **LV Side of the Offshore Platform** greater than 140ms in duration.

In addition to the requirements of CC.6.3.15.2. (a) each **Offshore Generating Unit** or **Offshore Power Park Module** and / or any constituent **Power Park Unit**, shall:

(i) remain transiently stable and connected to the **System** without tripping of any **Offshore Generating Unit** or **Offshore Power Park Module** and / or any constituent **Power Park Unit**, for any balanced voltage dips on the **LV side of the Offshore Platform** and associated durations anywhere on or above the heavy black line shown in Figure 7. Appendix 4B and Figures CC.A.4B.3. (a), (b) and (c) provide an explanation and illustrations of Figure 7. It should be noted that in the case of an **Offshore Generating Unit**, or **Offshore Power Park Module** (including any **Offshore Power Park Unit** thereof) which is connected to an **Offshore Transmission System** which includes a **Transmission DC Converter** as part of that **Offshore Transmission System**, the **Offshore Grid Entry Point** voltage may not indicate the presence of a voltage dip on the **Onshore Transmission System**. The voltage dip will affect the level of **Active Power** that can be transferred to the **Onshore Transmission System** and therefore subject the **Offshore Generating Unit**, or **Offshore Power Park Module** (including any **Offshore Power Park Unit** thereof) to a load rejection.

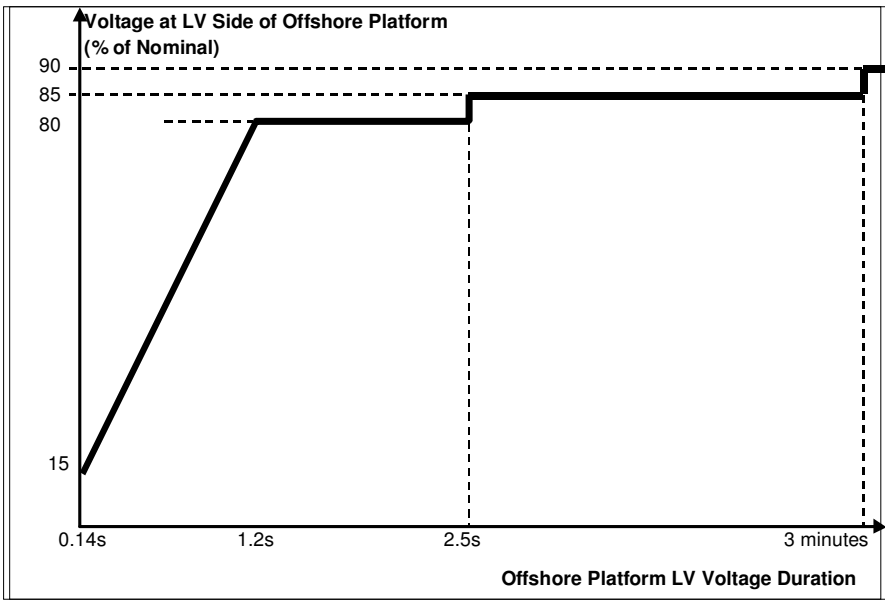


Figure 7

(ii) provide **Active Power** output, during voltage dips on the **LV Side of the Offshore Platform** as described in Figure 7, at least in proportion to the retained balanced or unbalanced voltage at the **LV Side of the Offshore Platform** except in the case of an **Offshore Non-Synchronous Generating Unit** or **Offshore Power Park Module** where there has been a reduction in the **Intermittent Power Source** in the time range in Figure 7 that restricts the **Active Power** output below

this level and shall generate maximum reactive current (where the voltage at the **Offshore Grid Entry Point** is outside the limits specified in CC.6.1.4) without exceeding the transient rating limits of the **Offshore Generating Unit** or **Offshore Power Park Module** and any constituent **Power Park Unit**; and,

(iii) within 1 second of the restoration of the voltage at the **LV Side of the Offshore Platform** (to the minimum levels specified in CC.6.1.4) restore **Active Power** to at least 90% of the **Offshore Generating Unit's** or **Offshore Power Park Module's** immediate pre-disturbed value, unless there has been a reduction in the **Intermittent Power Source** in the time range in Figure 7 that restricts the **Active Power** output below this level. Once the **Active Power** output has been restored to the required level, **Active Power** oscillations shall be acceptable provided that:

- the total **Active Energy** delivered during the period of the oscillations is at least that which would have been delivered if the **Active Power** was constant

- the oscillations are adequately damped

CC.6.3.15.3 Other Requirements

(i) In the case of a **Power Park Module** (comprising of wind-turbine generator units), the requirements in CC.6.3.15.1 and CC.6.3.15.2 do not apply when the **Power Park Module** is operating at less than 5% of its **Rated MW** or during very high wind speed conditions when more than 50% of the wind turbine generator units in a **Power Park Module** have been shut down or disconnected under an emergency shutdown sequence to protect **User's Plant** and **Apparatus**.

(ii) In addition to meeting the conditions specified in CC.6.1.5(b) and CC.6.1.6, each **Non-Synchronous Generating Unit**, **OTSDUW Plant and Apparatus** or **Power Park Module** with a **Completion Date** after 1 April 2005 and any constituent **Power Park Unit** thereof will be required to withstand, without tripping, the negative phase sequence loading incurred by clearance of a close-up phase-to-phase fault, by **System Back-Up Protection** on the **Onshore Transmission System** operating at **Supergrid Voltage**.

(iii) In the case of an **Onshore Power Park Module** in Scotland with a **Completion Date** before 1 January 2004 and a **Registered Capacity** less than 30MW the requirements in CC.6.3.15.1 (a) do not apply. In the case of an **Onshore Power Park Module** in Scotland with a **Completion Date** on or after 1 January 2004 and before 1 July 2005 and a **Registered Capacity** less than 30MW the requirements in CC.6.3.15.1 (a) are relaxed from the minimum **Onshore Transmission System Supergrid Voltage** of zero to a minimum **Onshore Transmission System Supergrid Voltage** of 15% of nominal. In the case of an **Onshore Power Park Module** in Scotland with a **Completion Date** before 1 January 2004 and a **Registered Capacity** of 30MW and above the requirements in CC.6.3.15.1 (a) are relaxed from the minimum **Onshore Transmission System Supergrid Voltage** of zero to a minimum **Onshore Transmission System Supergrid Voltage** of 15% of nominal.

(iv) To avoid unwanted island operation, **Non-Synchronous Generating Units** in Scotland (and those directly connected to a **Scottish**

Offshore Transmission System), or **Power Park Modules** in Scotland (and those directly connected to a **Scottish Offshore Transmission System**) , or **OTSDUW Plant and Apparatus** with an **Interface Point** in Scotland shall be tripped for the following conditions:-

1. Frequency above 52Hz for more than 2 seconds

2. Frequency below 47Hz for more than 2 seconds

3. Voltage as measured at the **Onshore Connection Point** or **Onshore User System Entry Point** or **Offshore Grid Entry Point** or **Interface Point** in the case of **OTSDUW Plant and Apparatus** is below 80% for more than 2.5 seconds

4. Voltage as measured at the **Onshore Connection Point** or **Onshore User System Entry Point** or **Offshore Grid Entry Point** or **Interface Point** in the case of **OTSDUW Plant and Apparatus** is above 120% (115% for 275kV) for more than 1 second.

The times in sections (1) and (2) are maximum trip times. Shorter times may be used to protect the **Non-Synchronous Generating Units**, or **OTSDUW Plant and Apparatus** or **Power Park Modules**.

Additional Damping Control Facilities for **DC Converters**

CC.6.3.16 (a) **DC Converter** owners, or Generators in respect of **OTSDUW DC Converters** or **Network Operators** in the case of an **Embedded DC Converter Station** not subject to a **Bilateral Agreement** must ensure that any of their **Onshore DC Converters** or **OTSDUW DC Converters** will not cause a sub-synchronous resonance problem on the **Total System**. Each **DC Converter** or **OTSDUW DC Converter** is required to be provided with sub-synchronous resonance damping control facilities.

(b) Where specified in the **Bilateral Agreement**, each **DC Converter** or **OTSDUW DC Converter** is required to be provided with power oscillation damping or any other identified additional control facilities.

System to Generator Operational Intertripping Scheme

CC.6.3.17 **NGET** may require that a **System to Generator Operational Intertripping Scheme** be installed as part of a condition of the connection of the **Generator**. Scheme specific details shall be included in the relevant **Bilateral Agreement** and shall, in respect of **Bilateral Agreements** entered into on or after 16th March 2009 include the following information:

1. the relevant category(ies) of the scheme (referred to as **Category 1 Intertripping Scheme**, **Category 2 Intertripping Scheme**, **Category 3 Intertripping Scheme** and **Category 4 Intertripping Scheme**);

2. the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** to be either permanently armed or that can be instructed to be armed in accordance with BC2.8;

3. the time within which the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** circuit breaker(s) are to be automatically tripped;

4. the location to which the trip signal will be provided by **NGET**. Such location will be provided by **NGET** prior to the commissioning of the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)**.

Where applicable, the **Bilateral Agreement** shall include the conditions on the **National Electricity Transmission System** during which **NGET** may instruct the **System to Generator Operational Intertripping Scheme** to be armed and the conditions that would initiate a trip signal.

CC.6.3.18 The time within which the **Generating Unit(s)** or **CCGT Module** or **Power Park Module** circuit breaker(s) need to be automatically tripped is determined by the specific conditions local to the **Generator**. This 'time to trip' (defined as time from provision of the trip signal by **NGET** to the specified location, to circuit breaker main contact opening) can typically range from 100ms to 10sec. A longer time to trip may allow the initiation of an automatic reduction in the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** output prior to the automatic tripping of the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** circuit breaker. Where applicable **NGET** may provide separate trip signals to allow for either a longer or shorter 'time to trip' to be initiated.

CC.6.4 GENERAL **NETWORK OPERATOR** AND **NON-EMBEDDED CUSTOMER** REQUIREMENTS

CC.6.4.1 This part of the **Grid Code** describes the technical and design criteria and performance requirements for **Network Operators** and **Non-Embedded Customers**.

Neutral **Earthing**

CC.6.4.2 At nominal **System** voltages of 132kV and above the higher voltage windings of three phase transformers and transformer banks connected to the **National Electricity Transmission System** must be star connected with the star point suitable for connection to earth. The earthing and lower voltage winding arrangement shall be such as to ensure that the **Earth Fault Factor** requirement of paragraph CC.6.2.1.1 (b) will be met on the **National Electricity Transmission System** at nominal **System** voltages of 132kV and above.

Frequency Sensitive Relays

CC.6.4.3 As explained under **OC6**, each **Network Operator**, will make arrangements that will facilitate automatic low **Frequency Disconnection** of **Demand** (based on **Annual ACS Conditions**). CC.A.5.5. of Appendix 5 includes specifications of the local percentage **Demand** that shall be disconnected at specific frequencies. The manner in which **Demand** subject to low **Frequency** disconnection will be split into discrete MW blocks is specified in OC6.6. Technical requirements relating to **Low Frequency Relays** are also listed in Appendix 5.

Operational Metering

CC.6.4.4 Where **NGET** can reasonably demonstrate that an **Embedded Medium Power Station** or **Embedded DC Converter Station** has a significant effect on the **National Electricity Transmission System**, it may require the **Network Operator** within whose **System** the **Embedded Medium Power Station or Embedded DC Converter Station** is situated to ensure that the operational metering equipment described in CC.6.5.6 is installed such that **NGET** can receive the data referred to in CC.6.5.6. In the case of an **Embedded Medium Power Station** subject to, or proposed to be subject to a **Bilateral Agreement NGET** shall notify such **Network Operator** of the details of such installation in writing within 3 months of being notified of the application to connect under **CUSC** and in the case of an **Embedded Medium Power Station** not subject to, or not proposed to be subject to a **Bilateral Agreemen**t in writing as a **Site Specific Requirement** in accordance with the timescales in CUSC 6.5.5. In either case the **Network Operator** shall ensure that the data referred to in CC.6.5.6 is provided to **NGET**.

CC.6.5 COMMUNICATIONS PLANT

CC.6.5.1 In order to ensure control of the **National Electricity Transmission System**, telecommunications between **Users** and **NGET** must (including in respect of any **OTSDUW Plant and Apparatus** at the **OTSUA Transfer Time**), if required by **NGET**, be established in accordance with the requirements set down below.

CC.6.5.2 **Control Telephony** and **System Telephony**

CC.6.5.2.1 **Control Telephony** is the principle method by which a **User's Responsible Engineer**/**Operator** and **NGET Control Engineers** speak to one another for the purposes of control of the **Total System** in both normal and emergency operating conditions. **Control Telephony** provides secure point to point telephony for routine **Control Calls**, priority **Control Calls** and emergency **Control Calls**.

CC.6.5.2.2 **System Telephony** is an alternate method by which a **User's Responsible Engineer**/**Operator** and **NGET Control Engineers** speak to one another for the purposes of control of the **Total System** in both normal operating conditions and where practicable, emergency operating conditions. **System Telephony** uses the Public Switched Telephony Network to provide telephony for **Control Calls**, inclusive of emergency **Control Calls**.

CC.6.5.2.3 Calls made and received over **Control Telephony** and **System Telephony** may be recorded and subsequently replayed for commercial and operational reasons.

CC.6.5.3 Supervisory Tones

CC.6.5.3.1 **Control Telephony** supervisory tones indicate to the calling and receiving parties dial, engaged, ringing, secondary engaged (signifying that priority may be exercised) and priority disconnect tones.

CC.6.5.3.2 **System Telephony** supervisory tones indicate to the calling and receiving parties dial, engaged and ringing tones.

CC.6.5.4 Obligations in respect of **Control Telephony** and **System Telephony**

CC.6.5.4.1 Where **NGET** requires **Control Telephony**, **Users** are required to use the **Control Telephony** with **NGET** in respect of all **Connection Points** with the **National Electricity Transmission System** and in respect of all **Embedded Large Power Stations** and **Embedded DC Converter Stations**. **NGET** will install **Control Telephony** at the **User's Control Point** where the **User's** telephony equipment is not capable of providing the required facilities or is otherwise incompatible with the **Transmission Control Telephony**. Details of and relating to the **Control Telephony** required are contained in the **Bilateral Agreement**.

CC.6.5.4.2 Where in **NGET's** sole opinion the installation of **Control Telephony** is not practicable at a **User's Control Point(s)**, **NGET** shall specify in the **Bilateral Agreement** whether **System Telephony** is required. Where **System Telephony** is required by **NGET**, the **User** shall ensure that **System Telephony** is installed.

CC.6.5.4.3 Where **System Telephony** is installed, **Users** are required to use the **System Telephony** with **NGET** in respect of those **Control Point(s)** for which it has been installed. Details of and relating to the **System Telephony** required are contained in the **Bilateral Agreement**.

CC.6.5.4.4 Where **Control Telephony** or **System Telephony** is installed, routine testing of such facilities may be required by **NGET** (not normally more than once in any calendar month). The **User** and **NGET** shall use reasonable endeavours to agree a test programme and where **NGET** requests the assistance of the **User** in performing the agreed test programme the **User** shall provide such assistance.

CC.6.5.4.5 **Control Telephony** and **System Telephony** shall only be used for the purposes of operational voice communication between **NGET** and the relevant **User**.

CC.6.5.4.6 **Control Telephony** contains emergency calling functionality to be used for urgent operational communication only. Such functionality enables **NGET** and **Users** to utilise a priority call in the event of an emergency. **NGET** and **Users** shall only use such priority call functionality for urgent operational communications.

CC.6.5.5 Technical Requirements for **Control Telephony** and **System Telephony**

CC.6.5.5.1 Detailed information on the technical interfaces and support requirements for **Control Telephony** applicable in **NGET's Transmission Area** is provided in the **Control Telephony Electrical Standard** identified in the Annex to the **General Conditions**. Where additional information, or information in relation to **Control Telephony** applicable in Scotland, is requested by **Users**, this will be provided, where possible, by **NGET**.

CC.6.5.5.2 **System Telephony** shall consist of a dedicated Public Switched Telephone Network telephone line that shall be installed and configured by the relevant **User**. **NGET** shall provide a dedicated free phone number (UK only), for the purposes of receiving incoming calls to **NGET**, which **Users** shall utilise for **System Telephony**. **System Telephony** shall only be utilised by the **NGET Control Engineer** and the **User's Responsible Engineer/Operator** for the purposes of operational communications.

Operational Metering

CC.6.5.6 (a) **NGET** shall provide system control and data acquisition (SCADA) outstation interface equipment. The **User** shall provide such voltage, current, **Frequency**, **Active Power** and **Reactive Power** measurement outputs and plant status indications and alarms to the **Transmission** SCADA outstation interface equipment as required by **NGET** in accordance with the terms of the **Bilateral Agreement**. In the case of **OTSDUW**, the **User** shall provide such SCADA outstation interface equipment and voltage, current, **Frequency**, **Active Power** and **Reactive Power** measurement outputs and plant status indications and alarms to the SCADA outstation interface equipment as required by **NGET** in accordance with the terms of the **Bilateral Agreement**.

(b) For the avoidance of doubt, for **Active Power** and **Reactive Power** measurements, circuit breaker and disconnector status indications from:

(i) **CCGT Modules** at **Large Power Stations**, the outputs and status indications must each be provided to **NGET** on an individual **CCGT Unit** basis. In addition, where identified in the **Bilateral Agreement**, **Active Power** and **Reactive Power** measurements from **Unit Transformers** and/or **Station Transformers** must be provided.

(ii) **DC Converters** at **DC Converter Stations** and **OTSDUW DC Converters**, the outputs and status indications must each be provided to **NGET** on an individual **DC Converter** basis. In addition, where identified in the **Bilateral Agreement**, **Active Power** and **Reactive Power** measurements from converter and/or station transformers must be provided.

(iii) **Power Park Modules** at **Embedded Large Power Stations** and at directly connected **Power Stations**, the outputs and status indications must each be provided to **NGET** on an individual **Power Park Module** basis. In addition, where identified in the **Bilateral Agreement**, **Active Power** and **Reactive Power** measurements from station transformers must be provided.

(iv) In respect of **OTSDUW Plant and Apparatus**, the outputs and status indications must be provided to **NGET** for each piece of electrical equipment. In addition, where identified in the **Bilateral Agreement**, **Active Power** and **Reactive Power** measurements at the **Interface Point** must be provided.

(c) For the avoidance of doubt, the requirements of CC.6.5.6(a) in the case of a **Cascade Hydro Scheme** will be provided for each **Generating Unit** forming part of that **Cascade Hydro Scheme**. In the case of **Embedded Generating Units** forming part of a **Cascade Hydro Scheme** the data may be provided by means other than a **NGET** SCADA outstation located at the **Power Station**, such as, with the agreement of the **Network Operator** in whose system such **Embedded Generating Unit** is located, from the **Network Operator's** SCADA system to **NGET**. Details of such arrangements will be contained in the relevant **Bilateral Agreements** between **NGET** and the **Generator** and the **Network Operator**.

(d) In the case of a **Power Park Module** an additional energy input signal (e.g. wind speed) may be specified in the **Bilateral Agreement** . The signal may be used to establish the level of energy input from the **Intermittent Power Source** for monitoring pursuant to CC.6.6.1 and **Ancillary Services** and will, in the case of a wind farm, be used to provide **NGET** with advanced warning of excess wind speed shutdown.

Instructor Facilities

CC.6.5.7 The **User** shall accommodate **Instructor Facilities** provided by **NGET** for the receipt of operational messages relating to **System** conditions.

Electronic Data Communication Facilities

CC.6.5.8 (a) All **BM Participants** must ensure that appropriate electronic data communication facilities are in place to permit the submission of data, as required by the **Grid Code**, to **NGET**.

(b) In addition, any **User** that wishes to participate in the **Balancing Mechanism** must ensure that appropriate automatic logging devices are installed at the **Control Points** of its **BM Units** to submit data to and to receive instructions from **NGET**, as required by the **Grid Code**. For the avoidance of doubt, in the case of an **Interconnector User** the **Control Point** will be at the **Control Centre** of the appropriate **Externally Interconnected System Operator**.

(c) Detailed specifications of these required electronic facilities will be provided by **NGET** on request and they are listed as **Electrical Standards** in the Annex to the **General Conditions**.

Facsimile Machines

CC.6.5.9 Each **User** and **NGET** shall provide a facsimile machine or machines:-

(a) in the case of **Generators**, at the **Control Point** of each **Power Station** and at its **Trading Point**;

(b) in the case of **NGET** and **Network Operators**, at the **Control Centre(s);** and

(c) in the case of **Non-Embedded Customers** and **DC Converter Station** owners at the **Control Point**.

Each **User** shall notify, prior to connection to the **System** of the **User's Plant and Apparatus**, **NGET** of its or their telephone number or numbers, and will notify **NGET** of any changes. Prior to connection to the **System** of the **User's Plant** and **Apparatus NGET** shall notify each **User** of the telephone number or numbers of its facsimile machine or machines and will notify any changes.

CC.6.5.10 Busbar Voltage

NGET shall, subject as provided below, provide each **Generator** or **DC Converter Station** owner at each **Grid Entry Point** where one of its **Power Stations** or **DC Converter Stations** is connected with appropriate voltage signals to enable the **Generator** or **DC Converter Station** owner to obtain the necessary information to permit its **Gensets or DC Converters** to be **Synchronised** to the **National Electricity Transmission System**. The term **"voltage signal"** shall mean in this context, a point of connection on (or wire or wires from) a relevant part of **Transmission Plant** and/or **Apparatus** at the **Grid Entry Point**, to which the **Generator** or **DC Converter Station** owner, with **NGET's** agreement (not to be unreasonably withheld) in relation to the **Plant** and/or **Apparatus** to be attached, will be able to attach its **Plant** and/or **Apparatus** (normally a wire or wires) in order to obtain measurement outputs in relation to the busbar.

CC.6.5.11 Bilingual Message Facilities

(a) A Bilingual Message Facility is the method by which the **User's Responsible Engineer/Operator**, the **Externally Interconnected System Operator** and **NGET Control Engineers** communicate clear and unambiguous information in two languages for the purposes of control of the **Total System** in both normal and emergency operating conditions.

(b) A Bilingual Message Facility, where required, will provide up to two hundred pre-defined messages with up to five hundred and sixty characters each. A maximum of one minute is allowed for the transmission to, and display of, the selected message at any destination. The standard messages must be capable of being displayed at any combination of locations and can originate from any of these locations. Messages displayed in the UK will be displayed in the English language.

(c) Detailed information on a Bilingual Message Facility and suitable equipment required for individual **User** applications will be provided by **NGET** upon request.

CC.6.6 **SYSTEM** MONITORING

CC.6.6.1 Monitoring equipment is provided on the **National Electricity Transmission System** to enable **NGET** to monitor its power system dynamic performance conditions. Where this monitoring equipment requires voltage and current signals on the **Generating Unit** (other than **Power Park Unit**), **DC Converter** or **Power Park Module** circuit from the **User** or from **OTSDUW Plant and Apparatus**, **NGET** will inform the **User** and they will be provided by the **User** with both the timing of the installation of the equipment for receiving such signals and its exact position being agreed (the **User's** agreement not to be unreasonably withheld) and the costs being dealt with, pursuant to the terms of the **Bilateral Agreement**.

CC.7 SITE RELATED CONDITIONS

CC.7.1 Not used.

CC.7.2 RESPONSIBILITIES FOR SAFETY

CC.7.2.1 In England and Wales, any **User** entering and working on its **Plant** and/or **Apparatus** on a **Transmission Site** will work to the **Safety Rules** of **NGET**.

In Scotland or **Offshore**, any **User** entering and working on its **Plant** and/or **Apparatus** on a **Transmission Site** will work to the **Safety Rules** of the **Relevant Transmission Licensee**, as advised by **NGET**.

CC.7.2.2 **NGET** entering and working on **Transmission Plant** and/or **Apparatus** on a **User Site** will work to the **User's Safety Rules**. For **User Sites** in Scotland or **Offshore**, **NGET** shall procure that the **Relevant Transmission Licensee** entering and working on **Transmission Plant** and/or **Apparatus** on a **User Site** will work to the **User's Safety Rules**.

CC.7.2.3 A **User** may, with a minimum of six weeks notice, apply to **NGET** for permission to work according to that **Users** own **Safety Rules** when working on its **Plant** and/or **Apparatus** on a **Transmission Site** rather than those set out in CC.7.2.1. If **NGET** is of the opinion that the **User's Safety Rules** provide for a level of safety commensurate with those set out in CC.7.2.1, **NGET** will notify the **User**, in writing, that, with effect from the date requested by the **User**, the **User** may use its own **Safety Rules** when working on its **Plant** and/or **Apparatus** on the **Transmission Site**. For a **Transmission Site** in Scotland or **Offshore**, in forming its opinion, **NGET** will seek the opinion of the **Relevant Transmission Licensee**. Until receipt of such written approval from **NGET**, the **User** will continue to use the **Safety Rules** as set out in CC7.2.1.

CC.7.2.4 In the case of a **User Site** in England and Wales, **NGET** may, with a minimum of six weeks notice, apply to a **User** for permission to work according to **NGET's Safety Rules** when working on **Transmission Plant** and/or **Apparatus** on that **User Site**, rather than the **User's Safety Rules**. If the **User** is of the opinion that **NGET's Safety Rules** provide for a level of safety commensurate with that of that **User's Safety Rules**, it will notify **NGET**, in writing, that, with the effect from the date requested by **NGET**, **NGET** may use its own **Safety Rules** when working on its **Transmission Plant** and/or **Apparatus** on that **User Site**. Until receipt of such written approval from the **User**, **NGET** shall continue to use the **User's Safety Rules**.

In the case of a **User Site** in Scotland or **Offshore**, **NGET** may, with a minimum of six weeks notice, apply to a **User** for permission for the **Relevant Transmission**

< End of OC1 >

OPERATING CODE NO.2

OPERATIONAL PLANNING AND DATA PROVISION

CONTENTS

(This contents page does not form part of the Grid Code)

OPERATING CODE NO.2

OPERATIONAL PLANNING AND DATA PROVISION

OC2.1 INTRODUCTION

OC2.1.1 **Operating Code No. 2** ("**OC2**") is concerned with:

(a) the co-ordination of the release of **Synchronous Generating Units** and **Power Park Modules**, **External Interconnections**, **the National Electricity Transmission System** and **Network Operators' Systems** for construction, repair and maintenance;

(b) provision by **NGET** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones**;

(c) the provision by **Generators** of **Generation Planning Parameters** for **Gensets**, including **CCGT Module Planning Matrices** and **Power Park Module Planning Matrices**, to **NGET** for planning purposes only; and

(d) the agreement for release of **Existing Gas Cooled Reactor Plant** for outages in certain circumstances.

OC2.1.2 (a) **Operational Planning** involves 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**, **Power Park Modules**, **External Interconnections**, and **DC Converters**, and of parts of the **National Electricity Transmission System** and of parts of **Network Operators' Systems** which is 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.

(b) In general terms there is an "envelope of opportunity" for the release of **Synchronous Generating Units, Power Park Modules** and **External Interconnections**, and for the release of parts of the **National Electricity Transmission System** and parts of the **Network Operator's User Systems** for outages. The envelope is defined by the difference between the total generation output expected from **Large Power Stations**, **Medium Power Stations** and **Demand**, the operational planning margin and taking into account **External Interconnections**.

OC2.1.3 In this **OC2** for the purpose of **Generator** and **Interconnector Owner** outage co-ordination Year 0 means the current calendar year at any time, Year 1 means the next calendar year at any time, Year 2 means the calendar year after Year 1, etc. For the purpose of **Transmission** outage planning Year 0 means the current **Financial Year** at any time, Year 1 means the next **Financial Year** at any time, Year 2 means the **Financial Year** after Year 1, etc. References to 'weeks' in **OC2** are to calendar weeks as defined in ISO 8601.

OC2.1.4 References in **OC2** to a **Generator's** and **Interconnector Owner's** "best estimate" shall be that **Generator's** or **Interconnector Owner's** best estimate acting as a reasonable and prudent **Generator** or **Interconnector Owner** in all the circumstances.

OC2.1.5 References to **NGET** planning the **National Electricity Transmission System** outage programme on the basis of the **Final Generation Outage Programme**, are to

NGET planning against the **Final Generation Outage Programme** current at the time it so plans.

OC2.1.6 Where in **OC2** data is required to be submitted or information is to be given on a particular day, that data does not need to be submitted and that information does not need to be given on that day if it is not a **Business Day** or it falls within a holiday period (the occurrence and length of which shall be determined by **NGET**, in its reasonable discretion, and notified to **Users).** Instead, that data shall be submitted and/or that information shall be given on such other **Business Day** as **NGET** shall, in its reasonable discretion, determine. However, **NGET** may determine that that data and/or information need not be submitted or given at all, in which case it shall notify each **User** as appropriate.

OC2.1.7 In Scotland, it may be possible with the agreement of **NGET** to reduce the administrative burden for **Users** in producing planning information where either the output or demand is small.

OC2.2 OBJECTIVE

OC2.2.1 (a) The objective of **OC2** is to seek to enable **NGET** to harmonise outages of **Synchronous Generating Units, Power Park Modules** and **External Interconnections** in order that such outages are co-ordinated (taking account of **Embedded Medium Power Stations**) between **Generators** and **Network Operators**, and that such outages are co-ordinated taking into account **National Electricity Transmission System** outages and other **System** outages, so far as possible to minimise the number and effect of constraints on the **National Electricity Transmission System** or any other **System**.

(b) In the case of **Network Operator' User Systems** directly connected to the **National Electricity Transmission System** this means in particular that there will also need to be harmonisation of outages of **Embedded Synchronous Generating Units** and **Embedded Power Park Modules**, and **National Electricity Transmission System** outages, with **Network Operators** in respect of their outages on those **Systems**.

OC2.2.2 The objective of **OC2** is also to enable the provision by **NGET** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones**.

OC2.2.3 A further objective of **OC2** is to provide for the agreement for outages for **Existing Gas Cooled Reactor Plant** in certain circumstances and to enable a process to be followed in order to provide for that.

OC2.2.4 The boundaries of the **System Zones** will be determined by **NGET** from time to time taking into account the disposition of **Generators' Power Stations** and **Interconnector Owners' External Interconnections** within the **System Zones.** The location of the boundaries will be made available to all **Users**. Any **User** may request that **NGET** reviews any of the **System Zonal** boundaries if that **User** considers that the current boundaries are not appropriate, giving the reasons for their concerns. On receipt of such a request **NGET** will review the boundaries if, in **NGET's** reasonable opinion, such a review is justified.

OC2.3 SCOPE

OC2.3.1 **OC2** applies to **NGET** and to **Users** which in **OC2** means:-

(a) **Generators**, only in respect of their **Large Power Stations** or their **Power Stations** which are directly connected to **National Electricity Transmission System** (and the term **Generator** in this **OC2** shall be construed accordingly);

(b) **Network Operators**; and

(c) **Non-Embedded Customers**; and

(d) **DC Converter Station** owners; and

(e) **Interconnector Owners** in respect of their **External Interconnections**.

OC2.3.2 **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 **OC2**.

OC2.4.1.2.1 (a)
OC2.4.1.2.1 (e)
OC2.4.1.2.1 (j)
OC2.4.1.2.2 (a)
OC2.4.1.2.2 (i)
OC2.4.1.3.2 (a)
OC2.4.1.3.2 (b)
OC2.4.1.3.3
OC2.4.2.1 (a)

OC2.3.3 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**.

OC2.4 PROCEDURE

OC2.4.1 Co-ordination of Outages

OC2.4.1.1 Under **OC2** the interaction between **NGET** and **Users** will be as follows:

(a)	Each **Generator**, and each **Interconnector Owner** and **NGET**	In respect of outages of **Synchronous Generating Units**, **Power Park Modules** and **External Interconnection Circuits** and in respect of outages of other **Plant** and/or **Apparatus** directly connected to the **National Electricity Transmission System**;
(b)	**NGET** and each **Generator** and each **Inteconnector Owner**	in respect of **National Electricity Transmission System** outages relevant to each **Generator** (other than in respect of **Embedded Small Power Stations** or **Embedded Medium Power Stations**) and **Interconnector Owner**;

(c)	**NGET** and each **Network Operator**	in respect of outages of all **Embedded Large Power Stations** and in respect of outages of other **Plant** and/or **Apparatus** relating to such **Embedded Large Power Stations**;
(d)	**NGET** and each **Network Operator** and each **Non-Embedded Customer**	in respect of **National Electricity Transmission System** outages relevant to the particular **Network Operator** or **Non-Embedded Customers**;
(e)	Each **Network Operator** and each **Non-Embedded Customer** and **NGET**	in respect of **User System** outages relevant to **NGET**; and in respect of **Network Operators** only, outages of the **Network Operator's User System** that may impact upon an **Offshore Transmission System** connected to that **Network Operator's User System**.

OC2.4.1.2 PLANNING OF **SYNCHRONOUS GENERATING UNIT** AND **EXTERNAL INTERCONNECTION** AND **POWER PARK MODULE** OUTAGES

OC2.4.1.2.1 **Operational Planning Phase** - Planning for Calendar Years 3 to 5 inclusive – Weekly Resolution

In each calendar year:

(a) By the end of week 2

Each **Generator** and each **Interconnector Owner** will provide **NGET** in writing with:

(i) a provisional **Synchronous Generating Unit** and **Power Park Module** outage programme (covering all non-**Embedded Power Stations** and **Embedded Large Power Stations**) for Year 3 to Year 5 (inclusive) specifying the **Synchronous Generating Unit** and/or **Power Park Module** and **External Interconnection Circuits** and MW concerned, duration of proposed outages, the preferred date for each outage and where there is a possibility of flexibility, the earliest start date and latest finishing date; and

(ii) a best estimate weekly **Output Usable** forecast of all its **Gensets** and **External Interconnections** for Year 3 to Year 5.

(b) Between the end of week 2 and the end of week 12

NGET will be:

(i) calculating total winter peak generating capacity assumed to be available to the **Total System**;

(ii) calculating the total winter peak generating capacity expected from **Large Power Stations**, taking into account **Demand** forecasts and details of

proposed use of **Demand Control** received under **OC1**, and an operational planning margin set by **NGET** (the "**Operational Planning Margin**");

(iii) calculating the weekly peak generating capacity expected from **Large Power Stations** taking into account demand forecasts and details of proposed use of **Demand Control** received under **OC1**, and the **Operational Planning Margin** and **Zonal System Security Requirements.** The total weekly peak MW needed to be available is the "weekly total MW required".

The calculation under (iii) will effectively define the envelope of opportunity for outages of **Synchronous Generating Units** and **Power Park Modules**.

During this period, **NGET** may, as appropriate, contact each **Generator** and each **Interconnector Owner** who has supplied information to seek clarification on points.

(c) By the end of week 12

NGET will:

(i) having taken into account the information notified to it by **Generators** and **Interconnector Owners** and taking into account:-

(1) **National Electricity Transmission System** constraints and outages,

(2) **Network Operator System** constraints and outages, known to **NGET**, and

(3) the **Output Usable** required, in its view, to meet weekly total MW requirements,

provide each **Generator** and each **Interconnector Owner** in writing with any suggested amendments to the provisional outage programme supplied by the **Generator** and **Interconnector Owner** which **NGET** believes necessary, and will advise **Generators** with **Large Power Stations** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones** and potential export limitations, on a weekly basis, which would occur without such amendments;

(ii) provide each **Network Operator** in writing with potential outages of **Synchronous Generating Units**, **External Interconnection Circuits** and/or **Power park Modules** which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGET** has notified the **Generator** concerned at least 48 hours beforehand of its intention to do so (including identifying the **Synchronous Generating Unit** and/or **Power Park Module** concerned).

(d) By the end of week 14

(i) Where a **Generator** or **Interconnector Owner** or a **Network Operator** is unhappy with the suggested amendments to its provisional outage programme (in the case of a **Generator** or **Interconnector Owner**) or such potential outages (in the case of a **Network Operator**) it may contact **NGET** to explain its concerns and **NGET** and that **Generator** or an **Interconnector Owner** or **Network Operator** will then discuss the problem and seek to resolve it.

(ii) The possible resolution of the problem may require **NGET** or a **User** to contact other **Generators** and **Network Operators**, and joint meetings of all parties may, if any **User** feels it would be helpful, be convened by **NGET**. The need for further discussions, be they on the telephone or at meetings, can only be determined at the time.

(e) By the end of week 25

Each **Generator** will provide **NGET** in writing with an updated provisional **Synchronous Generating Unit** and **Power Park Module** outage programme covering both **Embedded** and non-**Embedded Large Power Stations** together with the best estimate weekly **Output Usable** forecasts for each **Genset**, in all cases for Year 3 to Year 5 (inclusive). The updated provisional **Synchronous Generating Unit** and **Power Park Module** outage programme will contain the MW concerned, duration of proposed outages, the preferred date for each outage and, where applicable, earliest start date and latest finishing date, together with an update of the **Output Usable** estimate supplied under (a)(ii) above.

Each **Interconnector Owner** will provide **NGET** in writing with an updated provisional **External Interconnection Circuit** outage programme together with best estimate weekly **Output Usable** forecast for each **External Interconnection,** in all cases for Year 3 to Year 5 (inclusive). The updated provisional **External Interconnection Circuit** outage programme will contain the MW concerned, duration of proposed outages, the preferred date for each outage and, where applicable, earliest start date and latest finishing date, together with an update of the **Output Usable** estimate supplied under (a)(ii) above.

(f) Between the end of week 25 and the end of week 28

NGET will be considering the updated provisional **Synchronous Generating Unit**, **Power Park Module** and **External Interconnection Circuit** outage programmes, together with the best estimate weekly **Output Usable** forecasts supplied to it by **Generators** and **Interconnector Owners** under (e) and their **Registered Capacity** and will be analysing **Operational Planning Margins** for the period.

(g) By the end of week 28

NGET will:

(i) provide each **Generator** and each **Interconnector Owner** in writing with details of any suggested revisions considered by **NGET** as being necessary to the updated provisional **Synchronous Generating Unit**, **Power Park Module** and **External Interconnection Circuit** outage programmes supplied to **NGET** under (e) and will advise **Generators** with **Large Power Stations** and **Inteconnector Owners** of the **Surpluses** for the **National**

Electricity Transmission System and **System Zones** and potential export limitations on a weekly basis which would occur without such revisions; and

(ii) provide each **Network Operator** in writing with the update of potential outages of **Synchronous Generating Units**, **External Interconnection Circuits** and/or **Power Park Modules** which, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System**.

(h) By the end of week 31

Where a **Generator**, **Interconnector Owner** or a **Network Operator** is unhappy with the revisions suggested to the updated provisional **Synchronous Generating Unit**, **Power Park Module** and **External Interconnector Circuit** outage programme (in the case of a **Generator**) or such update of potential outages (in the case of an **Interconnector Owner** or **Network Operator**) under (g) it may contact **NGET** to explain its concerns and the provisions set out in (d) above will apply to that process.

(i) By the end of week 42

NGET will:

(1) provide each **Generator** and each **Interconnector Owner** in writing with details of suggested revisions considered by **NGET** as being necessary to the updated provisional **Synchronous Generating Unit**, **Power Park Module** and **External Inteconnection Circuit** outage programmes supplied to **NGET** and will advise **Generators** with **Large Power Stations** and **Interconnector Owners** of the **Surpluses** for the **National Electricity Transmission System** and **System Zones** and potential export limitations, on a weekly basis which would occur without such revisions;

(2) provide each **Network Operator** in writing with the update of potential outages of **Synchronous Generating Units** and/or **Power Park Modules** which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGET** has notified the **Generator** or, as appropriate, the **Interconnector Owner** concerned at least 48 hours beforehand of its intention to do so (including identifying the **Synchronous Generating Units** and/or **Power Park Modules** concerned).

(j) By the end of week 45

NGET will seek to agree a **Final Generation Outage Programme** for Year 3 to Year 5. If agreement cannot be reached on all aspects, **NGET** and each **Generator** and each **Interconnector Owner** will record their agreement on as many aspects as have been agreed and **NGET** will advise each **Generator** with **Large Power Stations**, **Interconnector Owner** and each **Network Operator**, of the **Surpluses** for the **National Electricity Transmission System** and **System Zones** on a weekly basis which would occur in relation to those aspects not agreed. It is accepted that agreement of the **Final Generation Outage Programme** is not a commitment on **Generators, Interconnector Owners** or **NGET** to abide by it, but **NGET** will be planning the **National Electricity Transmission System** outage programme on the basis of the **Final Generation Outage Programme** and if in the event the **Generator's** or the **Interconnector Owner's** outages differ from those contained in the **Final Generation Outage Programme**, or in any way conflict with the **National Electricity Transmission System** outage programme, **NGET** need not alter the **National Electricity Transmission System** outage programme.

OC2.4.1.2.2 **Operational Planning Phase** - Planning for Calendar Year 1 and Calendar Year 2 – Weekly Resolution

The basis for **Operational Planning** for Year 1 and Year 2 will be the **Final Generation Outage Programmes** agreed for Years 2 and 3:

In each calendar year:

(a) By the end of week 10

Each **Generator** and each **Interconnector Owner** will provide **NGET** in writing with its previously agreed **Final Generation Outage Programme** updated and best estimate weekly **Output Usable** forecasts for each **Genset** and for each **External Interconnection Circuit** for weeks 1-52 of Years 1 and 2.

(b) Between the end of week 10 and the end of week 12

NGET will be considering the updated proposed **Synchronous Generating Unit**, **Power Park Module** and **External Interconnection Circuit** outage programme together with the estimate of **Output Usable** supplied by **Generators** and **Interconnector Owners** under (a) and will be analysing **Operational Planning Margins** for the period. Taking these into account together with **National Electricity Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGET**, **NGET** will assess whether the estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** are sufficient to meet forecast **National Electricity Transmission System Demand** plus the **Operational Planning Margin**.

(c) By the end of week 12

NGET will:

(i) notify each **Generator** and each **Interconnector Owner** in writing whether the **Output Usable** estimates are adequate for weeks 1-52 of Years 1 and 2, together with suggested changes to its **Final Generation Outage Programme** where necessary and will advise each **Generator** with **Large Power Stations** and each **Interconnector Owner** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones** and potential export limitations, on a weekly resolution which would occur without such changes;

(ii) provide each **Network Operator** in writing with weekly **Output Usable** estimates of **Generators** and **Interconnector Owners** for weeks 1-52 of Years 1 and 2, and updated details of potential outages of **Synchronous Generating Units**, **Power Park Modules** and/or **External Interconnection Circuits** which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGET** has notified the **Generator** or, as appropriate, the **Interconnector Owner** concerned at least 48 hours beforehand of its intention to do so (including identifying the affected **Gensets** or **Synchronous Generating Units** or **Power Park Modules** and/or **External Interconnection Circuits**, as appropriate).

(d) By the end of week 14

Where a **Generator**, **Interconnector Owner** or a **Network Operator** is unhappy with any suggested changes to its **Final Generation Outage Programme** (in the case of a **Generator**) or such update of potential outages (in the case of an **Interconnector Owner** or **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(e) By the end of week 34

Each **Generator** and each **Interconnector Owner** will provide **NGET** in writing with revised best estimate weekly **Output Usable** forecasts for each **Genset** or **External Interconnection**, as appropriate, for weeks 1-52 of Years 1 and 2.

(f) Between the end of week 34 and the end of week 39

NGET will be analysing the revised estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** under (e) and will be analysing **Operational Planning Margins** for the period. Taking these into account together with **National Electricity Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGET**, **NGET** will assess whether the estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** are sufficient to meet forecast **National Electricity Transmission System Demand** plus the **Operational Planning Margin**.

(g) By the end of week 39

NGET will:

(i) notify each **Generator** and each **Interconnector Owner** in writing whether it accepts the **Output Usable** estimates for weeks 1-52 of Years 1 and 2, and of any suggested changes to its **Final Generation Outage Programme** where necessary and will advise **Generators** with **Large Power Stations** and **Interconnector Owners** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones** and potential export limitations on a weekly basis which would occur without such changes;

(ii) provide each **Network Operator** in writing with **Output Usable** estimates of **Generators** and **Interconnector Owners** for weeks 1-52 of Years 1 and 2, and updated details of potential outages of **Synchronous Generating Units**, **Power Park Modules** and/or **External Interconnection Circuits** which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGET** has notified the **Generator** or, as appropriate, **Interconnector Owner** concerned at least 48 hours beforehand of its intention to do so (including identifying the affected **Gensets** or **Synchronous Generating Units** or **Power Park Modules** and/or **External Interconnection** as appropriate).

(h) By the end of week 46

Where a **Generator**, an **Interconnector Owner** or a **Network Operator**, is unhappy with any suggested changes to its **Final Generation Outage Programme** (in the case of a **Generator**) or such update of potential outages (in the case of an **Interconnector Owner** or **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(i) By the end of week 48

NGET will seek to agree the revised **Final Generation Outage Programme** for Year 1 and Year 2. If agreement cannot be reached on all aspects, **NGET** and each **Interconnector Owner** and each **Generator** will record their agreement on as many aspects as have been agreed and **NGET** will advise each **Generator** with **Large Power Stations**, **Interconnector Owner** and each **Network Operator**, of **Generating Plant Demand Margins** for national and zonal groups, on a weekly basis, which would occur in relation to those aspects not agreed. It is accepted that agreement of the **Final Generation Outage Programme** is not a commitment on **Generators**, **Interconnector Owners** or **NGET** to abide by it, but **NGET** will be planning the **National Electricity Transmission System** outage programme on the basis of the **Final Generation Outage Programme** and if, in the event, a **Generator's** and/or **Interconnector Owner's** outages differ from those contained in the **Final Generation Outage Programme**, or in any way conflict with the **National Electricity Transmission System** outage programme, **NGET** need not alter the **National Electricity Transmission System** outage programme.

OC2.4.1.2.3 Planning for Calendar Year 0 – Weekly Resolution

The basis for **Operational Planning** for Year 0 will be the revised **Final Generation Outage Programme** agreed for Year 1:

In each week:

(a) By 1600 hours each Wednesday – Weekly Resolution

Each **Generator** and each **Interconnector Owner** will provide **NGET** in writing with an update of the **Final Generation Outage Programme** and a best estimate weekly **Output Usable** forecast for each of its **Gensets** or its **External Interconnection Circuits**, as appropriate, from the 2nd week ahead to the 52nd week ahead.

(b) Between 1600 hours Wednesday and 1600 hours Friday

NGET will be analysing the revised estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** under (a) and will be analysing **Operational Planning Margins** for the period. Taking into account **National Electricity Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGET**, **NGET** will assess whether the estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** are sufficient to meet forecast **National Electricity Transmission System Demand** plus the **Operational Planning Margin**.

(c) By 1600 hours each Friday

NGET will:

(i) notify each **Generator** with **Large Power Stations**, **Interconnector Owner** and **Network Operator**, in writing if it considers the **Output Usable** forecasts will give **Surpluses** and potential export limitations both for the **National Electricity Transmission System** and **System Zones** from the 2nd week ahead to the 52nd week ahead;

(ii) provide each **Network Operator**, in writing with weekly **Output Usable** estimates of **Gensets** and **External Interconnection** from the 2nd week ahead to the 52nd week ahead and updated outages of **Synchronous Generating Units**, **Power Park Modules** and/or **External Interconnection Circuits** which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** and

in such circumstances, **NGET** shall notify the **Generator** and **Interconnector Owner** concerned within 48 hours of so providing (including identifying the affected **Gensets** or **Synchronous Generating Units** and/or **Power Park Modules** and/or **External Interconnection Circuits**, as appropriate), from the 2nd week ahead to the 52nd week ahead.

OC2.4.1.2.4 Programming Phase – 2-49 Days Ahead – Daily Resolution

(a) By 1200 hours each Friday

NGET will notify in writing each **Generator** with **Large Power Stations**, **Interconnector Owner** and **Network Operator** if it considers the **Output Usable** forecasts will give MW shortfalls both nationally and for constrained groups for the period 2-7 weeks ahead.

(b) By 1100 hours each **Business Day**

Each **Generator** and each **Interconnector Owner** shall provide **NGET** in writing with the best estimate of daily **Output Usable** for each **Genset** or each **External Interconnection Circuit** as appropriate for the period from and including day 2 ahead to day 14 ahead, including the forecast return to service date for any such **Generating Unit**, **Power Park Module** or **External Interconnection** subject to **Planned Outage** or breakdown.

(c) By 1100 hours each Wednesday

For the period 2 to 49 days ahead, every Wednesday by 11:00 hours, each **Generator** and each **Interconnector Owner** shall provide **NGET** in writing best estimate daily **Output Usable** forecasts for each **Genset** or **External Interconnection**, and changes (start and finish dates) to **Planned Outage** or to the return to service times of each **Synchronous Generating Unit**, **Power Park Module** and/or **External Interconnection Circuit** which is subject to breakdown.

(d) Between 1100 hours and 1600 hours each **Business Day**

NGET will be analysing the revised estimates of **Output Usable** supplied by **Generators** and **Interconnector Owners** under (b) and will be analysing **Operational Planning Margins** for the period 2-14 days ahead. Taking into account **National Electricity Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGET**, **NGET** will assess whether the estimates of **Output Usable** are sufficient to meet forecast **National Electricity Transmission System Demand** plus the **Operational Planning Margin**.

(e) By 1600 hours each **Business Day**

(i) **NGET** will notify in writing each **Generator** with **Large Power Stations**, each **Interconnector Owner** and each **Network Operator**, of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones** and potential export limitations, for the period from and including day 2 ahead to day 14 ahead which it considers the **Output Usable** forecasts will give. The time of 1600 hours can only be met in respect of any **Generator**, **Interconnector Owner** or **Network Operator** if all the information from all **Generators** and **Interconnector Owners** was made available to **NGET** by 1100 hours and if a suitable electronic data transmission facility is in place between **NGET** and the **Generator**, or the **Interconnector Owner** or the **Network Operator**, as the case

may be, and if it is fully operational. In the event that any of these conditions is not met, or if it is necessary to revert to a manual system for analysing the information supplied and otherwise to be considered, **NGET** reserve the right to extend the timescale for issue of the information required under this sub-paragraph to each, or the relevant, **Generator**, **Interconnector Owner** and/or **Network Operator** (as the case may be) provided that such information will in any event be issued by 1800 hours.

(ii) **NGET** will provide each **Network Operator**, where it has an effect on that **User**, in writing with **Output Usable** estimates of **Gensets** and **External Interconnections** from and including day 2 ahead to day 14 ahead and updated outages of **Synchronous Generating Units**, **Power Park Modules** and/or **External Interconnection Circuits** which are either in its **User System** or which may, in the reasonable opinion of **NGET** and the **Network Operator**, affect the integrity of that **Network Operator's User System** and in such circumstances, **NGET** shall notify the **Generator** and **Interconnector Owner** concerned within 48 hours of so providing (including identifying the affected **Gensets** or **Synchronous Generating Units** or **Power Park Modules** and/or **External Interconnection Circuits**, as appropriate), for the period from and including day 2 ahead to day 14 ahead.

OC2.4.1.3 Planning of **National Electricity Transmission System** Outages

OC2.4.1.3.1 **Operational Planning Phase** - Planning for **Financial Years** 2 to 5 inclusive ahead

NGET shall plan **National Electricity Transmission System** outages required in Years 2 to 5 inclusive required as a result of construction or refurbishment works. This contrasts with the planning of **National Electricity Transmission System** outages required in Years 0 and 1 ahead, when **NGET** also takes into account **National Electricity Transmission System** outages required as a result of maintenance.

Users should bear in mind that **NGET** will be planning the **National Electricity Transmission System** outage programme on the basis of the previous year's **Final Generation Outage Programme** and if in the event a **Generator's**, an **Interconnector Owner's** or **Network Operator's** outages differ from those contained in the **Final Generation Outage Programme**, or in the case of **Network Operators**, those known to **NGET**, or in any way conflict with the **National Electricity Transmission System** outage programme, **NGET** need not alter the **National Electricity Transmission System** outage programme.

OC2.4.1.3.2 In each calendar year:

(a) By the end of week 8

Each **Network Operator** will notify **NGET** in writing of details of proposed outages in Years 2-5 ahead in its **User System** which may affect the performance of the **Total System** (which includes but is not limited to outages of **User System Apparatus** at **Grid Supply Points** and outages which constrain the output of **Synchronous Generating Units** and/or **Power Park Modules Embedded** within that **User System**).

Each **Network Operator** will notify **NGET** in writing of details of proposed outages in Years 2-5 ahead in its **User System** which may affect the declared values of **Maximum Export Capacity** and/or **Maximum Import Capacity** for each **Interface Point** within its **User System** together with the **Network Operator's** revised best estimate of the **Maximum Export Capacity** and/or

Maximum Import Capacity during such outages. **Network Operators** will also notify **NGET** of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.

(b) By the end of week 13

Each **Generator** will inform **NGET** in writing of proposed outages in Years 2 - 5 ahead of **Generator** owned **Apparatus** (eg. busbar selectors) other than **Synchronous Generating Units**, and/or **Power Park Modules**, at each **Grid Entry Point**.

NGET will provide to each **Network Operator** and to each **Generator** and each **Interconnector Owner** a copy of the information given to **NGET** under paragraph (a) above (other than the information given by that **Network Operator**). In relation to a **Network Operator**, the data must only be used by that **User** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(c) By the end of week 28

NGET will provide each **Network Operator** in writing with details of proposed outages in Years 2-5 ahead which may, in **NGET's** reasonable judgement, affect the performance of that **Network Operator's User System**.

(d) By the end of week 30

Where **NGET** or a **Network Operator** is unhappy with the proposed outages notified to it under (a), (b) or (c) above, as the case may be, equivalent provisions to those set out in OC2.4.1.2.1 (d) will apply.

(e) By the end of week 34

NGET will draw up a draft **National Electricity Transmission System** outage plan covering the period Years 2 to 5 ahead and **NGET** will notify each **Generator**, **Interconnector Owner** and **Network Operator** in writing of those aspects of the plan which may operationally affect such **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**), **Interconnector Owner** or **Network Operator**. **NGET** will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an **Operational Intertripping** scheme) or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **National Electricity Transmission System** to be maintained within the **Licence Standards**.

OC2.4.1.3.3 **Operational Planning Phase** - Planning for **Financial Year** 1 ahead

Each calendar year **NGET** shall update the draft **National Electricity Transmission System** outage plan prepared under OC2.4.1.3.2 above and shall in addition take into account outages required as a result of maintenance work.

In each calendar year:

(a) By the end of week 13

Generators and **Non-Embedded Customers** will inform **NGET** in writing of proposed outages for Year 1 of **Generator** owned **Apparatus** at each **Grid**

Entry Point (e.g. busbar selectors) other than **Synchronous Generating Units** and/or **Power Park Modules** or **Non-Embedded Customer** owned **Apparatus**, as the case may be, at each **Grid Supply Point**.

(b) By the end of week 28

NGET will provide each **Network Operator** and each **Non-Embedded Customer** in writing with details of proposed outages in Year 1 ahead which may, in **NGET's** reasonable judgement, affect the performance of its **User System** or the **Non-Embedded Customer Apparatus** at the **Grid Supply Point**.

(c) By the end of week 32

Each **Network Operator** will notify **NGET** in writing with details of proposed outages in Year 1 in its **User System** which may affect the performance of the **Total System** (which includes but is not limited to outages of **User System Apparatus** at **Grid Supply Points** and outages which constrain the output of **Synchronous Generating Units** and/or **Power Park Modules Embedded** within that **User System**).

Each **Network Operator** will notify **NGET** in writing of details of proposed outages in Year 1 in its **User System** which may affect the declared values of **Maximum Export Capacity** and/or **Maximum Import Capacity** for each **Interface Point** within its **User System** together with the **Network Operator's** revised best estimate of the **Maximum Export Capacity** and/or **Maximum Import Capacity** during such outages. **Network Operators** will also notify **NGET** of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.

Each **Network Operator** will also notify **NGET** in writing of any revisions to **Interface Point Target Voltage/Power Factor** data submitted pursuant to PC.A.2.5.4.2.

(d) Between the end of week 32 and the end of week 34

NGET will draw up a revised **National Electricity Transmission System** outage plan (which for the avoidance of doubt includes **Transmission Apparatus** at the **Connection Points**).

(e) By the end of week 34

NGET will notify each **Generator**, **Interconnector Owner**, and **Network Operator**, in writing, of those aspects of the **National Electricity Transmission System** outage programme which may, in **NGET's** reasonable opinion, operationally affect that **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**), **Interconnector Owner**, or **Network Operator** including in particular proposed start dates and end dates of relevant **National Electricity Transmission System** outages.

NGET will provide to each **Network Operator** and to each **Generator** and each **Interconnector Owner** a copy of the information given to **NGET** under paragraph (c) above (other than the information given by that **Network Operator**). In relation to a **Network Operator**, the data must only be used by that **User** in operating that **Network Operator's User System** and must not be

used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(f) By the end of week 36

Where a **Generator**, **Interconnector Owner** or **Network Operator** is unhappy with the proposed aspects notified to it under (e) above, equivalent provisions to those set out in OC2.4.1.2.1 (d) will apply.

(g) Between the end of week 34 and 49

NGET will draw up a final **National Electricity Transmission System** outage plan covering Year 1.

(h) By the end of week 49

(i) **NGET** will complete the final **National Electricity Transmission System** outage plan for Year 1. The plan for Year 1 becomes the final plan for Year 0 when by expiry of time Year 1 becomes Year 0.

(ii) **NGET** will notify each **Generator**, each **Interconnector Owner** and each **Network Operator** in writing of those aspects of the plan which may operationally affect such **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**), **Interconnector Owner** or **Network Operator** including in particular proposed start dates and end dates of relevant **National Electricity Transmission System** outages. **NGET** will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an **Operational Intertripping** scheme) or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **National Electricity Transmission System** to be maintained within the **Licence Standards**. **NGET** will also inform each relevant **Non-Embedded Customer** of the aspects of the plan which may affect it.

(iii) In addition, in relation to the final **National Electricity Transmission System** outage plan for Year 1, **NGET** will provide to each **Generator** and each **Interconnector Owner** a copy of the final **National Electricity Transmission System** outage plan for that year. OC2.4.1.3.4 contains provisions whereby updates of the final **National Electricity Transmission System** outage plan are provided. The plan and the updates will be provided in writing. It should be noted that the final **National Electricity Transmission System** outage plan for Year 1 and the updates will not give a complete understanding of how the **National Electricity Transmission System** will operate in real time, where the **National Electricity Transmission System** operation may be affected by other factors which may not be known at the time of the plan and the updates. Therefore, **Users** should place no reliance on the plan or the updates showing a set of conditions which will actually arise in real time.

(i) Information Release or Exchange

This paragraph (i) contains alternative requirements on **NGET**, paragraph (z) being an alternative to a combination of paragraphs (x) and (y). Paragraph (z) will only apply in relation to a particular **User** if **NGET** and that **User** agree that it should apply, in which case paragraphs (x) and (y) will not apply. In the absence

of any relevant agreement between **NGET** and the **User, NGET** will only be required to comply with paragraphs (x) and (y).

Information Release to each **Network Operator** and **Non-Embedded Customer**

Between the end of Week 34 and 49 **NGET** will upon written request:

(x) for radial systems, provide each **Network Operator** and **Non Embedded Customer** with data to allow the calculation by the **Network Operator**, and each **Non Embedded Customer**, of symmetrical and asymmetrical fault levels; and

(y) for interconnected **Systems**, provide to each **Network Operator** an equivalent network, sufficient to allow the identification of symmetrical and asymmetrical fault levels, and power flows across interconnecting **User Systems** directly connected to the **National Electricity Transmission System**; or

System Data Exchange

(z) as part of a process to facilitate understanding of the operation of the **Total System**,

(1) **NGET** will make available to each **Network Operator**, the **National Electricity Transmission System Study Network Data Files** covering Year 1 which are of relevance to that **User's System**;

(2) where **NGET** and a **User** have agreed to the use of data links between them, the making available will be by way of allowing the **User** access to take a copy of the **National Electricity Transmission System Study Network Data Files** once during that period. The **User** may, having taken that copy, refer to the copy as often as it wishes. Such access will be in a manner agreed by **NGET** and may be subject to separate agreements governing the manner of access. In the absence of agreement, the copy of the **National Electricity Transmission System Study Network Data Files** will be given to the **User** on a disc, or in hard copy, as determined by **NGET**;

(3) the data contained in the **National Electricity Transmission System Study Network Data Files** represents **NGET's** view of operating conditions although the actual conditions may be different;

(4) **NGET** will notify each **Network Operator**, as soon as reasonably practicable after it has updated the **National Electricity Transmission System Study Network Data Files** covering Year 1 that it has done so, when this update falls before the next annual update under this OC2.4.1.3.3(i). **NGET** will then make available to each **Network Operator** who has received an earlier version (and in respect of whom the agreement still exists), the updated **National Electricity Transmission System Study Network Files** covering the balance of Years 1 and 2 which remain given the passage of time, and which are of relevance to that **User's System**. The provisions of paragraphs (2) and (3) above shall apply to the making available of these updates;

(5) the data from the **National Electricity Transmission System Study Network Data Files** received by each **Network Operator** must only

be used by that **User** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

OC2.4.1.3.4 **Operational Planning Phase** - Planning in **Financial Year** 0 down to the **Programming Phase** (and in the case of load transfer capability, also during the **Programming Phase**)

(a) The **National Electricity Transmission System** outage plan for Year 1 issued under OC2.4.1.3.3 shall become the plan for Year 0 when by expiry of time Year 1 becomes Year 0.

(b) Each **Generator** or **Interconnector Owner** or **Network Operator** or **Non-Embedded Customer** may at any time during Year 0 request **NGET** in writing for changes to the outages requested by them under OC2.4.1.3.3. In relation to that part of Year 0, excluding the period 1-7 weeks from the date of request, **NGET** shall determine whether the changes are possible and shall notify the **Generator**, **Interconnector Owner**, **Network Operator** or **Non-Embedded Customer** in question whether this is the case as soon as possible, and in any event within 14 days of the date of receipt by **NGET** of the written request in question.

Where **NGET** determines that any change so requested is possible and notifies the relevant **User** accordingly, **NGET** will provide to each **Network Operator**, each **Interconnector Owner**, and each **Generator** a copy of the request to which **NGET** has agreed which relates to outages on **Systems** of **Network Operators** (other than any request made by that **Network Operator**). The information must only be used by that **Network Operator** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(c) During Year 0 (including the **Programming Phase**) each **Network Operator** shall at **NGET's** request make available to **NGET** such details of automatic and manual load transfer capability of:

(i) 12MW or more (averaged over any half hour) for England and Wales
(ii) 10MW or more (averaged over any half hour) for Scotland

between **Grid Supply Points.**

During Year 0 (including the **Programming Phase**) each **Network Operator** shall notify **NGET** of any revisions to the information provided pursuant to OC2.4.1.3.3 (c) for **Interface Points** as soon as reasonably practicable after the **Network Operator** becomes aware of the need to make such revisions.

(d) When necessary during Year 0, **NGET** will notify each **Generator**, each **Interconnector Owner** and **Network Operator** and each **Non-Embedded Customer**, in writing of those aspects of the **National Electricity Transmission System** outage programme in the period from the 8th week ahead to the 52nd week ahead, which may, in **NGET's** reasonable opinion, operationally affect that **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) **Interconnector Owner** or **Network Operator** or **Non-Embedded Customer** including in particular proposed start dates and end dates of relevant **National Electricity Transmission System** outages.

NGET will also notify changes to information supplied by **NGET** pursuant to OC2.4.1.3.3(i)(x) and (y) except where in relation to a **User** information was supplied pursuant to OC2.4.1.3.3(i)(z). In that case:-

(i) **NGET** will, by way of update of the information supplied by it pursuant to OC2.4.1.3.3(i)(z), make available at the first time in Year 0 that it updates the **National Electricity Transmission System Study Network Data Files** in respect of Year 0 (such update being an update on what was shown in respect of Year 1 which has then become Year 0) to each **Network Operator** who has received an earlier version under OC2.4.1.3.3(i)(z) (and in respect of whom the agreement still exists), the **National Electricity Transmission System Study Network Data Files** covering Year 0 which are of relevance to that **User's System**.

(ii) **NGET** will notify each relevant **Network Operator**, as soon as reasonably practicable after it has updated the **National Electricity Transmission System Study Network Data Files** covering Year 0, that it has done so. **NGET** will then make available to each such **Network Operator**, the updated **National Electricity Transmission System Study Network Data Files** covering the balance of Year 0 which remains given the passage of time, and which are of relevance to that **User's System.**

(iii) The provisions of OC2.4.1.3.3(i)(z)(2), (3) and (5) shall apply to the provision of data under this part of OC2.4.1.3.4(d) as if set out in full.

NGET will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an **Operational Intertripping** scheme) or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **National Electricity Transmission System** to be maintained within the **Licence Standards**.

(e) In addition, by the end of each month during Year 0, **NGET** will provide to each **Generator** and each **Interconnector Owner** a notice containing any revisions to the final **National Electricity Transmission System** outage plan for Year 1, provided to the **Generator** or the **Interconnector Owner** under OC2.4.1.3.3 or previously under this provision, whichever is the more recent.

OC2.4.1.3.5 Programming Phase

(a) By 1600 hours each Thursday

(i) **NGET** shall continue to update a preliminary **National Electricity Transmission System** outage programme for the eighth week ahead, a provisional **National Electricity Transmission System** outage programme for the next week ahead and a final day ahead **National Electricity Transmission System** outage programme for the following day.

(ii) **NGET** will notify each **Generator**, **Interconnector Owner** and **Network Operator** and each **Non-Embedded Customer**, in writing of those aspects of the preliminary **National Electricity Transmission System** outage programme which may operationally affect each **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Interconnector Owner** or **Network Operator** and each **Non-Embedded Customer** including in particular proposed start dates and end dates of relevant **National Electricity Transmission System** outages.

NGET will also notify changes to information supplied by **NGET** pursuant to OC2.4.1.3.3(i)(x) and (y) except where in relation to a **User** information was supplied pursuant to OC2.4.1.3.3(i)(z). In that case:-

1. **NGET** will, by way of update of the information supplied by it pursuant to OC2.4.1.3.3(i)(z), make available the **National Electricity Transmission System Study Network Data Files** for the next week ahead and

2. **NGET** will notify each relevant **Network Operator**, as soon as reasonably practicable after it has updated the **National Electricity Transmission System Study Network Data Files** covering the next week ahead that it has done so, and

3. The provisions of OC2.4.1.3.3(i)(z)(2), (3) and (5) shall apply to the provision of data under this part of OC2.4.1.3.5(a)(ii) as if set out in full.

NGET may make available the **National Electricity Transmission System Study Network Data Files** for the next week ahead where **NGET** and a particular **User** agree, and in such case the provisions of OC2.4.1.1.3.3(i)(x) and (y) and the provisions of OC2.4.1.3.4(d) and OC2.4.1.3.5(a) which relate to OC2.4.1.1.3.3(i)(x) and (y) shall not apply. In such case the provisions of this OC2.4.1.3.5(a)(ii)2 and 3 shall apply to the provision of the data under this part of OC2.4.1.3.5(a)(ii) as if set out in full.

NGET will also indicate where a need may exist to arm an **Operational Intertripping** scheme, emergency switching, emergency **Demand** management or other measures including the issuing of other operational instructions or notifications or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **National Electricity Transmission System** to be maintained within the **Licence Standards**.

(b) By 1000 hours each Friday

Generators, **Interconnector Owners** and **Network Operators** will discuss with **NGET** and confirm in writing to **NGET**, acceptance or otherwise of the requirements detailed under OC2.4.1.3.5.

Network Operators shall confirm for the following week:

(i) the details of any outages of its **User System** that will restrict the **Maximum Export Capacity** and/or **Maximum Import Capacity** at any **Interface Points** within its **User System** for the following week; and
(ii) any changes to the previously declared values of the **Interface Point Target Voltage**/**Power Factor**.

(c) By 1600 hours each Friday

(i) **NGET** shall finalise the preliminary **National Electricity Transmission System** outage programme up to the seventh week ahead. **NGET** will endeavour to give as much notice as possible to a **Generator** with nuclear **Large Power Stations** which may be operationally affected by an outage which is to be included in such programme.

(ii) **NGET** shall finalise the provisional **National Electricity Transmission System** outage programme for the next week ahead.

(iii) **NGET** shall finalise the **National Electricity Transmission System** outage programme for the weekend through to the next normal working day.

(iv) In each case **NGET** will indicate the factors set out in (a)(ii) above (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) to the relevant **Generators** and **Network Operators** and **Non-Embedded Customers**.

(v) Where a **Generator** with nuclear **Large Power Stations** which may be operationally affected by the preliminary **National Electricity Transmission System** outage programme referred to in (i) above (acting as a reasonable operator) is concerned on grounds relating to safety about the effect which an outage within such outage programme might have on one or more of its nuclear **Large Power Stations,** it may contact **NGET** to explain its concerns and discuss whether there is an alternative way of taking that outage (having regard to technical feasibility). If there is such an alternative way, but **NGET** refuses to adopt that alternative way in taking that outage, that **Generator** may involve the **Disputes Resolution Procedure** to decide on the way the outage should be taken. If there is no such alternative way, then **NGET** may take the outage despite that **Generator's** concerns.

(d) By 1600 hours each Monday, Tuesday, Wednesday and Thursday

(i) **NGET** shall prepare a final **National Electricity Transmission System** outage programme for the following day.

(ii) **NGET** shall notify each **Generator** and **Network Operator** and **Non-Embedded Customer** in writing of the factors set out in (a)(ii) above (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**).

OC2.4.2 DATA REQUIREMENTS

OC2.4.2.1 When a **Statement** of **Readiness** under the **Bilateral Agreement** and/or **Construction Agreement** is submitted, and thereafter in calendar week 24 in each calendar year,

(a) each **Generator** shall (subject to OC2.4.2.1(k)) in respect of each of its:-

(i) **Gensets** (in the case of the **Generation Planning Parameters**); and

(ii) **CCGT Units** within each of its **CCGT Modules** at a **Large Power Station** (in the case of the **Generator Performance Chart**)

submit to **NGET** in writing the **Generation Planning Parameters** and the **Generator Performance Chart**.

(b) Each shall meet the requirements of CC.6.3.2 and shall reasonably reflect the true operating characteristics of the **Genset**.

(c) They shall be applied (unless revised under this **OC2** or (in the case of the **Generator Performance Chart** only) **BC1** in relation to **Other Relevant Data**) from the **Completion Date,** in the case of the ones submitted with the **Statement of Readiness,** and in the case of the ones submitted in calendar week 24, from the beginning of week 25 onwards.

(d) They shall be in the format indicated in Appendix 1 for these charts and as set out in Appendix 2 for the **Generation Planning Parameters**.

(e) Any changes to the **Generator Performance Chart** or **Generation Planning Parameters** should be notified to **NGET** promptly.

(f) **Generators** should note that amendments to the composition of the **CCGT Module** or **Power Park Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.3 or PC.A.3.2.4 respectively. If in accordance with PC.A.3.2.3 or PC.A.3.2.4 an amendment is made, any consequential changes to the **Generation Planning Parameters** should be notified to **NGET** promptly.

(g) **The Generator Performance Chart** must be as described below and demonstrate the limitation on reactive capability of the **System** voltage at 3% above nominal. It must also include any limitations on output due to the prime mover (both maximum and minimum), **Generating Unit** step up transformer or **User System.**

(i) For a **Synchronous Generating Unit** on a **Generating Unit** specific basis at the **Generating Unit** Stator Terminals. It must include details of the **Generating Unit** transformer parameters.

(ii) For a **Non-Synchronous Generating Unit** (excluding a **Power Park Unit**) on a **Generating Unit** specific basis at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**).

(iii) For a **Power Park Module**, on a **Power Park Module** specific basis at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**).

(iv) For a **DC Converter** on a **DC Converter** specific basis at the **Grid Entry Poin**t (or **User System Entry Point** if **Embedded**).

(h) For each **CCGT Unit**, and any other **Generating Unit** or **Power Park Module** whose performance varies significantly with ambient temperature, the **Generator Performance Chart** shall show curves for at least two values of ambient temperature so that **NGET** can assess the variation in performance over all likely ambient temperatures by a process of linear interpolation or extrapolation. One of these curves shall be for the ambient temperature at which the **Generating Unit**'s output, or **CCGT Module** at a **Large Power Station** output or **Power Park Module's** output, as appropriate, equals its **Registered Capacity.**

(i) The **Generation Planning Parameters** supplied under OC2.4.2.1 shall be used by **NGET** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism** (subject as otherwise permitted in the **BCs**).

(j) Each **Generator** shall in respect of each of its **CCGT Modules** at **Large Power Stations** submit to **NGET** in writing a **CCGT Module Planning Matrix**. It shall be prepared on a best estimate basis relating to how it is anticipated the **CCGT Module** will be running and which shall reasonably reflect the true operating characteristics of the **CCGT Module.** It will be applied (unless revised under this OC2) from the **Completion Date,** in the case of the one submitted with the **Statement of Readiness,** and in the case of the one submitted in calendar week 24, from the beginning of week 31 onwards. It must show the combination

of **CCGT Units** which would be running in relation to any given MW output, in the format indicated in Appendix 3.

Any changes must be notified to **NGET** promptly. **Generators** should note that amendments to the composition of the **CCGT Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.3. If in accordance with PC.A.3.2.3 an amendment is made, an updated **CCGT Module Planning Matrix** must be immediately submitted to **NGET** in accordance with this OC2.4.2.1(b).

The **CCGT Module Planning Matrix** will be used by **NGET** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism**.

(k) Each **Generator** shall in respect of each of its **Cascade Hydro Schemes** also submit the **Generation Planning Parameters** detailed at OC2.A.2.6 to OC2.A.2.10 for each **Cascade Hydro Scheme**. Such parameters need not also be submitted for the individual **Gensets** within such **Cascade Hydro Scheme**.

(l) Each **Generator** shall in respect of each of its **Power Park Modules** at **Large Power Stations** submit to **NGET** in writing a **Power Park Module Planning Matrix**. It shall be prepared on a best estimate basis relating to how it is anticipated the **Power Park Module** will be running and which shall reasonably reflect the operating characteristics of the **Power Park Module.** It will be applied (unless revised under this OC2) from the **Completion Date,** in the case of the one submitted with the **Statement of Readiness,** and in the case of the one submitted in calendar week 24, from the beginning of week 31 onwards. It must show the number of each type of **Power Park Unit** in the **Power Park Module** typically expected to be available to generate, in the format indicated in Appendix 4. The **Power Park Module Planning Matrix** shall be accompanied by a graph showing the variation in MW output with **Intermittent Power Source** (e.g. MW vs wind speed) for the **Power Park Module**. The graph shall indicate the typical value of the **Intermittent Power Source** for the **Power Park Module**.

Any changes must be notified to **NGET** promptly. **Generators** should note that amendments to the composition of the **Power Park Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.4. If in accordance with PC.A.3.2.4 an amendment is made, an updated **Power Park Module Planning Matrix** must be immediately submitted to **NGET** in accordance with this OC2.4.2.1(a).

The **Power Park Module Planning Matrix** will be used by **NGET** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism**.

OC2.4.2.2 Each **Network Operator** shall by 1000 hrs on the day falling seven days before each **Operational Day** inform **NGET** in writing of any changes to the circuit details called for in PC.A.2.2.1 which it is anticipated will apply on that **Operational Day** (under **BC1** revisions can be made to this data).

OC2.4.3 **NEGATIVE RESERVE ACTIVE POWER MARGINS**

OC2.4.3.1 In each calendar year, by the end of week 39 **NGET** will, taking into account the **Final Generation Outage Programme** and forecast of **Output Usable** supplied by each **Generator** and by each **Interconnector Owner**, issue a notice in writing to:-

(a) all **Generators** with **Large Power Stations** and to all **Interconnector Owners** listing any period in which there is likely to be an unsatisfactory **System NRAPM**; and

(b) all **Generators** with **Large Power Stations** and to all **Interconnector Owners** which may, in **NGET's** reasonable opinion be affected, listing any period in which there is likely to be an unsatisfactory **Localised NRAPM**, together with the identity of the relevant **System Constraint Group** or **Groups**,

within the next calendar year, together with the margin. **NGET** and each **Generator** and each **Interconnector Owner** will take these into account in seeking to co-ordinate outages for that period.

OC2.4.3.2 (a) By 0900 hours each **Business Day**

Each **Generator** shall provide **NGET** in writing with a best estimate of **Genset** inflexibility on a daily basis for the period 2 to 14 days ahead (inclusive).

(b) By 1600 hours each Wednesday

Each **Generator** shall provide **NGET** in writing with a best estimate of **Genset** inflexibility on a weekly basis for the period 2 to 7 weeks ahead (inclusive).

(c) Between 1600 hours each Wednesday and 1200 hours each Friday

(i) If **NGET**, taking into account the estimates supplied by **Generators** under (b) above, and forecast **Demand** for the period, foresees that:-

(1) the level of the **System NRAPM** for any period within the period 2 to 7 weeks ahead (inclusive) is too low, it will issue a notice in writing to all **Generators**, **Interconnector Owners**, and **Network Operators** listing any periods and levels of **System NRAPM** within that period; and/or

(2) having also taken into account the appropriate limit on transfers to and from a **System Constraint Group**, the level of **Localised NRAPM** for any period within the period 2 to 7 weeks ahead (inclusive) is too low for a particular **System Constraint Group**, it will issue a notice in writing to all **Generators**, **Interconnector Owners**, and **Network Operators** which may, in **NGET's** reasonable opinion be affected by that **Localised NRAPM**, listing any periods and levels of **Localised NRAPM** within that period. A separate notice will be given in respect of each affected **System Constraint Group**.

Outages Adjustments

(ii) **NGET** will then contact **Generators** in respect of their **Large Power Stations** and **Interconnector Owners** to discuss outages as set out in the following paragraphs of this OC2.4.3.2.

(iii) **NGET** will contact all **Generators** and **Interconnector Owners** in the case of low **System NRAPM** and will contact **Generators** in relation to relevant **Large Power Stations** and **Interconnector Owners** in the case of low **Localised NRAPM**. **NGET** will raise with each **Generator** and **Interconnector Owner** the problems it is anticipating due to the low **System NRAPM** or **Localised NRAPM** and will discuss:-

(1) whether any change is possible to the estimate of **Genset** inflexibility given under (b) above; and

(2) whether **Genset** or **External Interconnection** outages can be taken to coincide with the periods of low **System NRAPM** or **Localised NRAPM** (as the case may be).

In relation to **Generators** with nuclear **Large Power Stations** the discussions on outages can include the issue of whether outages can be taken for re-fuelling purposes to coincide with the relevant low **System NRAPM** and/or **Localised NRAPM** periods.

(iv) If agreement is reached with a **Generator** or an **Interconnector Owner** (which unlike the remainder of **OC2** will constitute a binding agreement), then such **Generator** or **Interconnector Owner** will take such outage, as agreed with **NGET**, and **NGET** will issue a revised notice in writing to the **Generators**, **Interconnector Owners**, and **Network Operators** to which it sent notices under (i) above, reflecting the changes brought about to the periods and levels of **System NRAPM** and/or **Localised NRAPM** by the agreements with **Generators** or **Interconnector Owners**.

(d) By 1600 hours each day

(i) If **NGET**, taking into account the estimates supplied under (a) above, and forecast **Demand** for the period, foresees that:-

(1) the level of **System NRAPM** for any period within the period of 2 to 14 days ahead (inclusive) is too low, it will issue a notice in writing to all **Generators**, **Interconnector Owners**, and **Network Operators** listing the periods and levels of **System NRAPM** within those periods; and/or

(2) having also taken into account the appropriate limit on transfers to and from a **System Constraint Group**, the level of **Localised NRAPM** for any period within the period of 2 to 14 days ahead (inclusive) is too low for a particular **System Constraint Group**, it will issue a notice in writing to all **Generators**, **Interconnector Owners**, and **Network Operators** which may, in **NGET's** reasonable opinion be affected by that **Localised NRAPM**, listing any periods and levels of **Localised NRAPM** within that period. A separate notice will be given in respect of each affected **System Constraint Group**.

(ii) **NGET** will contact all **Generators** in respect of their **Large Power Stations** (or in the case of **Localised NRAPM**, all **Generators** which may, in **NGET's** reasonable opinion be affected, in respect of their relevant **Large Power Stations**) to discuss whether any change is possible to the estimate of

Genset inflexibility given under (a) above and to consider **Large Power Station** outages to coincide with the periods of low **System NRAPM** and/or **Localised NRAPM** (as the case may be).

In the case of **External Interconnections, NGET** may contact **Interconnector Owners** to discuss outages during the periods of low **System NRAPM** and/or **Localised NRAPM** (as the case may be).

(e) If on the day prior to a **Operational Day**, it is apparent from the **BM Unit Data** submitted by **Users** under **BC1** that **System NRAPM** and/or **Localised NRAPM** (as the case may be) is, in **NGET's** reasonable opinion, too low, then in accordance with the procedures and requirements set out in BC1.5.5 **NGET** may contact **Users** to discuss whether changes to **Physical Notifications** are possible, and if they are, will reflect those in the operational plans for the next following **Operational Day** or will, in accordance with BC2.9.4 instruct **Generators** to **De-Synchronise** a specified **Genset** for such period. In determining which **Genset** to so instruct, **BC2** provides that **NGET** will not (other than as referred to below) consider in such determination (and accordingly shall not instruct to **De-Synchronise**) any **Genset** within an **Existing Gas Cooled Reactor Plant**. **BC2** further provides that:-

(i) **NGET** is permitted to instruct to **De-Synchronise** any **Gensets** within an **Existing AGR Plant** if those **Gensets** within an **Existing AGR Plant** have failed to offer to be flexible for the relevant instance at the request of **NGET** provided the request is within the **Existing AGR Plant Flexibility Limit**.

(ii) **NGET** will only instruct to **De-Synchronise** any **Gensets** within an **Existing Magnox Reactor Plant** or within an **Existing AGR Plant** (other than under (i) above) if the level of **System NRAPM** (taken together with **System** constraints) and/or **Localised NRAPM** is such that it is not possible to avoid **De-Synchronising** such **Generating Unit**, and provided the power flow across each **External Interconnection** is either at zero or results in an export of power from the **Total System**. This proviso applies in all cases in the case of **System NRAPM** and in the case of **Localised NRAPM**, only when the power flow would have a relevant effect.

OC2.4.4 FREQUENCY SENSITIVE OPERATION

By 1600 hours each Wednesday

OC2.4.4.1 Using such information as **NGET** shall consider relevant including, if appropriate, forecast **Demand**, any estimates provided by **Generators** of **Genset** inflexibility and anticipated plant mix relating to operation in **Frequency Sensitive Mode**, **NGET** shall determine for the period 2 to 7 weeks ahead (inclusive) whether it is possible that there will be insufficient **Gensets** (other than those **Gensets** within **Existing Gas Cooled Reactor Plant** which are permitted to operate in **Limited Frequency Sensitive Mode** at all times under BC3.5.3) to operate in **Frequency Sensitive Mode** for all or any part of that period.

OC2.4.4.2 BC3.5.3 explains that **NGET** permits **Existing Gas Cooled Reactor Plant** other than **Frequency Sensitive AGR Units** to operate in a **Limited Frequency Sensitive Mode** at all times.

OC2.4.4.3 If **NGET** foresees that there will be an insufficiency in **Gensets** operating in a **Frequency Sensitive Mode**, it will contact **Generators** in order to seek to agree (as soon as reasonably practicable) that all or some of the **Gensets** (the MW amount being determined by **NGET** but the **Gensets** involved being determined by the

Generator) will take outages to coincide with such period as **NGET** shall specify to enable replacement by other **Gensets** which can operate in a **Frequency Sensitive Mode**. If agreement is reached (which unlike the remainder of OC2 will constitute a binding agreement) then such **Generator** will take such outage as agreed with **NGET**. If agreement is not reached, then the provisions of BC2.9.5 may apply.

OC2.4.5 If in **NGET's** reasonable opinion it is necessary for both the procedure set out in OC2.4.3 (relating to **System NRAPM** and **Localised NRAPM**) and in OC2.4.4 (relating to operation in **Frequency Sensitive Mode**) to be followed in any given situation, the procedure set out in OC2.4.3 will be followed first, and then the procedure set out in OC2.4.4. For the avoidance of doubt, nothing in this paragraph shall prevent either procedure from being followed separately and independently of the other.

OC2.4.6 **OPERATING MARGIN** DATA REQUIREMENTS

OC2.4.6.1 Modifications to relay settings

'Relay settings' in this OC2.4.6.1 refers to the settings of **Low Frequency Relays** in respect of **Gensets** that are available for start from standby by **Low Frequency Relay** initiation with **Fast Start Capability** agreed pursuant to the **Bilateral Agreement.**

By 1600 hours each Wednesday

A change in relay settings will be sent by **NGET** no later than 1600 hours on a Wednesday to apply from 1000 hours on the Monday following. The settings allocated to particular **Large Power Stations** may be interchanged between 49.70Hz and 49.60Hz (or such other **System Frequencies** as **NGET** may have specified) provided the overall capacity at each setting and **System** requirements can, in **NGET's** view, be met.

Between 1600 hours each Wednesday and 1200 hours each Friday

If a **Generator** wishes to discuss or interchange settings it should contact **NGET** by 1200 hours on the Friday prior to the Monday on which it would like to institute the changes to seek **NGET's** agreement. If **NGET** agrees, **NGET** will then send confirmation of the agreed new settings.

By 1500 hours each Friday

If any alterations to relay settings have been agreed, then the updated version of the current relay settings will be sent to affected **Users** by 1500 hours on the Friday prior to the Monday on which the changes will take effect. Once accepted, each **Generator** (if that **Large Power Station** is not subject to forced outage or **Planned Outage**) will abide by the terms of its latest relay settings.

In addition, **NGET** will take account of any **Large Power Station** unavailability (as notified under OC2.4.1.2 submissions) in its total **Operating Reserve** policy.

NGET may from time to time, for confirmation purposes only, issue the latest version of the current relay settings to each affected **Generator**

OC2.4.6.2 **Operating Margins**

By 1600 hours each Wednesday

No later than 1600 hours on a Wednesday, **NGET** will provide an indication of the level of **Operating Reserve** to be utilised by **NGET** in connection with the operation of the **Balancing Mechanism** in the week beginning with the **Operational Day** commencing during the subsequent Monday, which level shall be purely indicative.

This **Operating Margin** indication will also note the possible level of **Operating Reserve** (if any) which may be provided by **Interconnector Users** in the week beginning with the **Operational Day** commencing during the subsequent Monday.

This **Operating Margin** indication will also note the possible level of **High Frequency Response** to be utilised by **NGET** in connection with the operation of the **Balancing Mechanism** in the week beginning with the **Operational Day** commencing during the subsequent Monday, which level shall be purely indicative.

GENERATOR PERFORMANCE CHART

KEY

A) Practical Stability Limit
B) Rotor Heating Limit
C) Transformer Tap Limit
D) Transformer MVA Limit
E) User System

GENERATOR

MW 500
MVA 588
pf 0.85
kV 22
Xd 2.68

TRANSFORMER

MVA 570
Xt .147

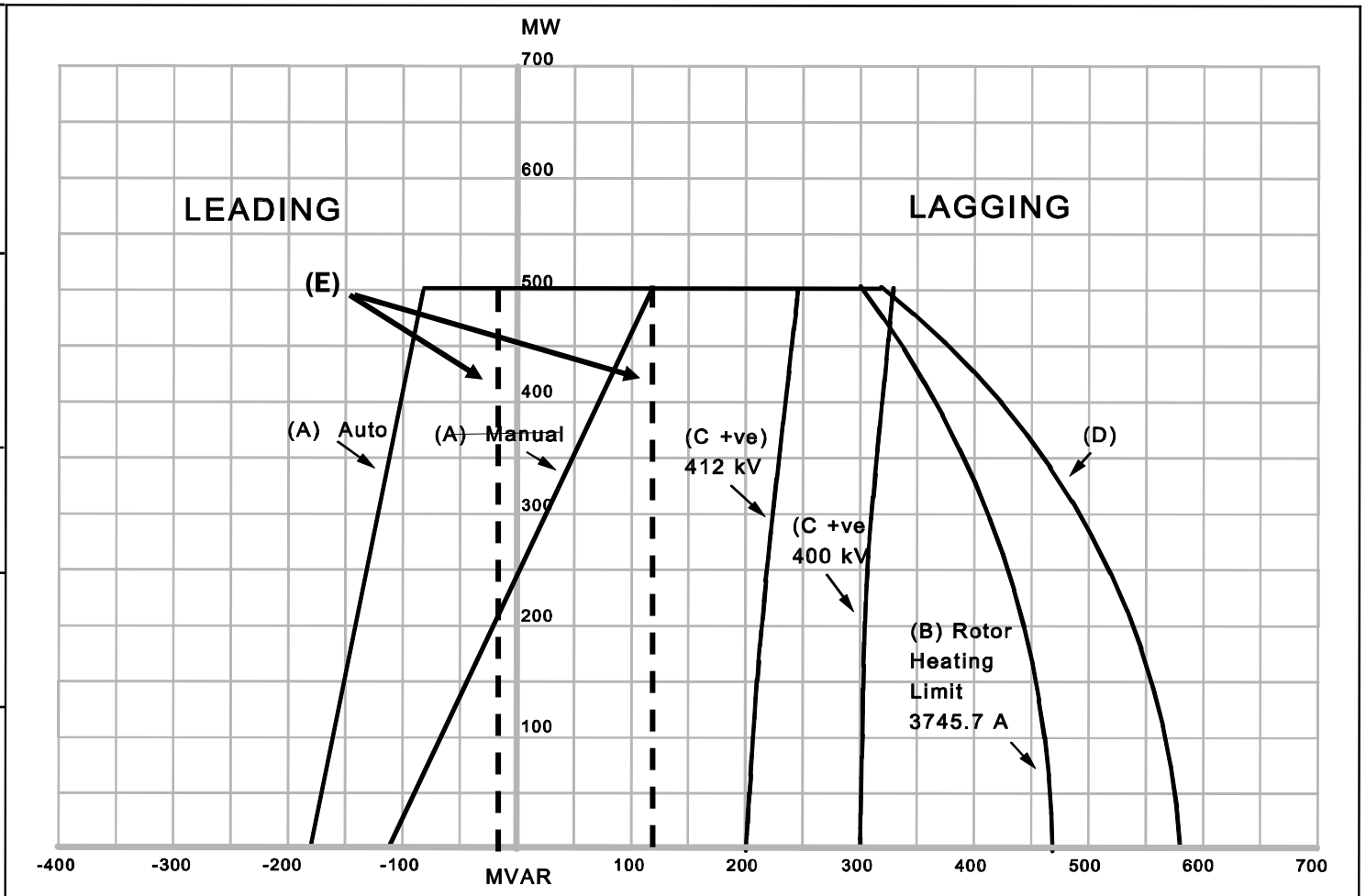
UNIT TRANSFORMER

MW Load 15
MVAR Load 11.25

SYSTEM VOLTAGE

400 kV Nominal
412 kV High

File Ref : 76 :B

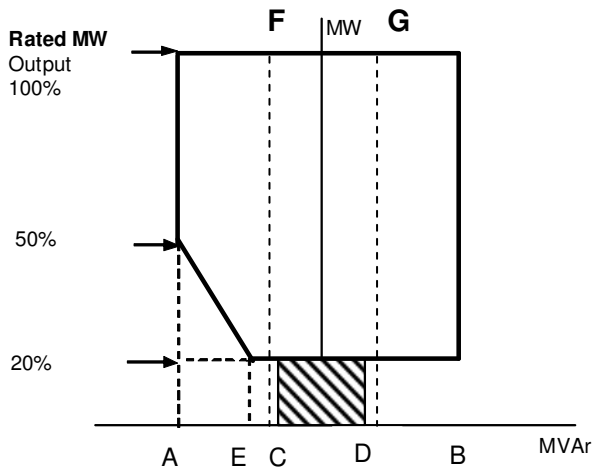


Comments	OPERATING CHART CONFIRMED BY LOADING TESTS

Generating Unit Stator Terminals

☐ Where a **Reactive Despatch Network Restriction** is in place which requires following of local voltage conditions, alternatively to (E), please check this box.

POWER PARK MODULE PERFORMANCE CHART AT THE CONNECTION POINT OR USER'S SYSTEM ENTRY POINT



LEADING LAGGING

Point A is equivalent (in MVAr) to: 0.95 leading **Power Factor** at **Rated MW** output
Point B is equivalent (in MVAr) to: 0.95 lagging **Power Factor** at **Rated MW** output
Point C is equivalent (in MVAr) to: -5% of **Rated MW** output
Point D is equivalent (in MVAr) to: +5% of **Rated MW** output
Point E is equivalent (in MVAr) to: -12% of **Rated MW** output
Line F is equivalent (in MVAr) to: Leading **Power Factor Reactive Despatch Network Restriction**
Line G is equivalent (in MVAr) to: Lagging **Power Factor Reactive Despatch Network Restriction**

☐ Where a **Reactive Despatch Network Restriction** is in place which requires following of local voltage conditions, alternatively to Line F and G, please check this box.

OC2 APPENDIX 2

OC2.A.2 **Generation Planning Parameters**

The following parameters are required in respect of each **Genset**.

OC2.A.2.1 Regime Unavailability

Where applicable the following information must be recorded for each **Genset**.

- Earliest synchronising time:
  Monday
  Tuesday to Friday
  Saturday to Sunday

- Latest de-synchronising time:
  Monday to Thursday
  Friday
  Saturday to Sunday

OC2.A.2.2 **Synchronising** Intervals

(a) The **Synchronising** interval between **Gensets** in a **Synchronising Group** assuming all **Gensets** have been **Shutdown** for 48 hours;

(b) The **Synchronising Group** within the **Power Station** to which each **Genset** should be allocated.

OC2.A.2.3 **De-Synchronising** Interval

A fixed value **De-Synchronising** interval between **Gensets** within a **Synchronising Group.**

OC2.A.2.4 **Synchronising Generation**

The amount of MW produced at the moment of **Synchronising** assuming the **Genset** has been **Shutdown** for 48 hours.

OC2.A.2.5 Minimum Non-zero time (MNZT)

The minimum period on-load between **Synchronising** and **De-Synchronising** assuming the **Genset** has been **Shutdown** for 48 hours.

OC2.A.2.6 Run-Up rates

A run-up characteristic consisting of up to three stages from **Synchronising Generation** to **Output Usable** with up to two intervening break points assuming the **Genset** has been **Shutdown** for 48 hours.

OC2.A.2.7 Run-down rates

A run down characteristic consisting of up to three stages from **Output Usable** to **De-Synchronising** with breakpoints at up to two intermediate load levels.

PC.2	5-6	Clause PC.2.1 amended
PC.3	6-8	Clauses PC.3.1 and.3.4 amended
PC.4	10-12	Clauses PC.4.2, 4.3 and 4.4 amended
PC.5	14-15	Clause PC.5.4 amended
PC.6	15-16	Clause PC.6.1 Amended. Clauses PC.6.4 to 6.7 added
PC.7	17-18	Clauses 7.5, 7.6 and 7.7 amended
PC.8	18-19	Clause PC.8 added
PC.A.1	19-22	Clause PC.A.1.4 amended
PC.A.2	23-30	Clause PC.A.2.1 and 2.2 amended
PC.A.3	33, 35 & 38	Clause PC.A.3.1, 3.2 and 3.3 amended
PC.A.4	40	Clause PC.A4.1 amended
PC.A.5	56-61	Clause PC.A.5.4 amended
PC.A.6	65-69	Clauses PC.A.6.2 to 6.6 amended
PC.A.7	69-70	Clause PC.A.7 amended
PC.A.8	71-73	Clauses PC.A.8, 8.1, 8.2 and 8.3 amended
PC.F	83-85	Planning Code Appendix F added
CC.1	1	Clause CC.1.1 amended
CC.2	1	Clauses CC.2.2 – 2.4 added
CC.3	1	Clause CC.3.1 amended
CC.5	5	Clause CC.5.2 amended
CC.6	6-44	Clauses CC.6.1, 6.2, 6.3, 6.5 and 6.6 amended
CC.7	44-50	Clauses CC.7.2, 7.4 and 7.5 amended
CC.8	52	Clause CC.8.1(b) amended
CC.A.1	54	Clause CC.A.1.1 amended
CC.A.3	68-69	Clause CC.A.3.1 amended
CC.A.4A	73 -74	Clauses CC.A.4A.2 and 4A.3 amended
CC.A.7	88-93	Clauses CC.A.7.1 and A.7.2 amended
DRC	2	Schedule 11 note 3 amended

OC.11	2-5	Clauses OC.11.1, 11.2, 11.3 and 11.4 amended
GC.4	3	Clause GC.4.5 Amended

Revision 6 Effective Date: 18th July 2011

CODE	PAGE	CLAUSE
G&D	Various	Definitions added: "External Interconnection Circuit", Interconnector Export Capacity", "Interconnector Import Capacity" and "Interconnector Owner". Definitions amended "Final Generation Outage Programme", "Offshore Grid Entry Point", "Onshore Grid Entry Point" and "Output Useable or OU".
OC2	2-26	Clauses OC2.1, OC2.2, OC2.3 and OC2.4 amended
CC.6	6, 7 & 37	Clauses CC.6.1.3, CC.6.1.4 and CC.6.3.15 amended