# **OPERATING CODE NO. 1**

# DEMAND FORECASTS

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

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### **OPERATING CODE NO. 1**

#### **DEMAND** FORECASTS

#### OC1.1 <u>INTRODUCTION</u>

- OC1.1.1 **Operating Code No.1** ("OC1") is concerned with **Demand** forecasting for operational purposes. In order to match generation output with **Demand** for electricity it is necessary to undertake **Demand** forecasting. It is also necessary to undertake **Demand** forecasting of **Reactive Power**.
- OC1.1.2 In the **Operational Planning Phase**, **Demand** forecasting shall be conducted by <del>NGCthe System Operator</del> taking account of **Demand** forecasts furnished by **Network Operators** and in certain circumstances, **Generators**, who shall provide <del>NGCthe System Operator</del> with information in the form set out in this **OC1**. The data supplied under the **PC** is also taken into account.
- OC1.1.3 In the **Programming Phase** and **Control Phase**, <u>NGCthe System Operator</u> | will conduct its own **Demand** forecasting taking into account information to be furnished by **Suppliers**, **Network Operators** and by **Generators** and the other factors referred to in OC1.6.1.
- OC1.1.4 In this OC1, the point of connection of the External Interconnection to the NGC Transmission System shall be considered as a Grid Supply Point. Reactive Power Demand includes the series Reactive losses of the User's System but excludes any network susceptance and any Reactive compensation on the User's System. NGC The System Operator will obtain the lumped network susceptance and details of Reactive compensation from the requirements to submit data under the PC.
- OC1.1.5 Data relating to **Demand Control** should include details relating to MW.
- OC1.1.6 OC1 deals with the provision of data on Demand Control in the Operational Planning Phase, the Programming Phase and the Post-Control Phase, whereas OC6 (amongst other things) deals with the provision of data on Demand Control following the Programming Phase and in the Control Phase.
- OC1.1.7 In this **OC1**, Year 0 means the current **NGC**-**Financial Year** at any time, Year 1 means the next **NGC**-**Financial Year** at any time, Year 2 means the **NGC Financial Year** after Year 1, etc.
- OC1.1.8 References in **OC1** to data being supplied on a half hourly basis refer to it being supplied for each period of 30 minutes ending on the hour and half-hour in each hour.

OC1.2 <u>OBJECTIVE</u>

The objectives of **OC1** are to:

- OC1.2.1 enable the provision of data to <u>NGCthe System Operator</u> by Users in the **Programming Phase, Control Phase** and **Post-Control Phase**; and
- OC1.2.2 provide for the factors to be taken into account by NGCthe System Operator when Demand forecasting in the Programming Phase and Control Phase.
  - OC1.3 SCOPE

OC1 applies to NGCthe System Operator and to Users which in this OC1 means:-

- (a) Generators,
- (b) **Network Operators**, and
- (c) **Suppliers**.

# OC1.4 DATA REQUIRED BY NGCTHE SYSTEM OPERATOR IN THE OPERATIONAL PLANNING PHASE

- OC1.4.1 (a) Each **User**, as specified in (b) below, shall provide <u>NGCthe System</u> <u>Operator</u> with the data requested in OC1.4.2 below.
  - (b) The data will need to be supplied by:-
    - (i) each **Network Operator** directly connected to the **NGCTransmission System** in relation to **Demand Control**; and
    - (ii) each Generator with respect to the output of Medium Power Stations.
- OC1.4.2 (a) <u>Data</u> By calendar week 28 each year each **Network Operator** will provide to <del>NGC the System Operator</del> in writing the forecast information listed in (c) below for the current <del>NGC</del> **Financial Year** and each of the succeeding five <del>NGC</del> **Financial Years**.
  - (b) <u>Data Providers</u> In circumstances when the busbar arrangement at a **Grid Supply Point** is expected to be operated in separate sections, separate sets of forecast information for each section will be provided to <u>NGCthe System</u> <u>Operator</u>.
  - (c) Medium Power Station Output and Demand Control:
    - For the specified time of the annual peak half hour NGCGB Demand, as specified by NGCthe System Operator under PC.A.5.2.2, the output of Medium Power Stations (whether Embedded or not) and forecasts of Demand to be relieved by Demand Control on a Grid Supply Point basis giving details of the amount and duration of the Demand Control.

# OC1.5 DATA REQUIRED BY NGCTHE SYSTEM OPERATOR IN THE PROGRAMMING PHASE, CONTROL PHASE and POST-CONTROL PHASE

#### OC1.5.1 **Programming Phase**

For the period of 2 to 8 weeks ahead the following will be supplied to NGCthe System Operator in writing by 1000 hours each Monday:

#### (a) **Demand Control:**

Each **Network Operator** will supply MW profiles of the amount and duration of their proposed use of **Demand Control** which may result in a **Demand** change <u>equal to or greater than the **Demand Control** <u>Notification Levelof 12MW or more</u> (averaged over any half hour on any **Grid Supply Point**) on a half hourly and **Grid Supply Point** basis;</u>

#### (b) <u>Medium Power Station Operation:</u>

Each Generator will, if reasonably required by <u>NGCthe System</u> <u>Operator</u>, supply MW schedules for the operation of Medium Power Stations on a half hourly and Grid Supply Point basis.

OC1.5.2 For the period 2 to 12 days ahead the following will be supplied to NGC<u>the</u> System Operator in writing by 1200 hours each Wednesday:

#### (a) **Demand Control:**

Each Network Operator will supply MW profiles of the amount and duration of their proposed use of Demand Control which may result in a Demand change equal to or greater than the Demand Control Notification Level of 12MW or more (averaged over any half hour on any Grid Supply Point) on a half hourly and Grid Supply Point basis;

#### (b) <u>Medium Power Station Operation:</u>

Each **Generator** will, if reasonably required by <u>NGCthe System</u> <u>Operator</u>, supply MW schedules for the operation of **Medium Power Stations** on a half hourly and **Grid Supply Point** basis.

#### OC1.5.3 Medium Power Station Output:

Each **Generator** will, if reasonably required by NGCthe System Operator, supply NGCthe System Operator with MW schedules for the operation of **Medium Power Stations** on a half hourly and **Grid Supply Point** basis in writing by 1000 hours each day (or such other time specified by NGCthe System <u>Operator</u> from time to time) for the next day (except that it will be for the next 3 days on Fridays and 2 days on Saturdays and may be longer (as specified by NGCthe System Operator at least one week in advance) to cover holiday periods);

#### OC1.5.4 Other Codes

Under OC6 each Network Operator will notify NGC the System Operator of their proposed use of Demand Control (which may result in a Demand change equal to or greater than the Demand Control Notification Levelof 12MW or more), and under BC1, each Supplier will notify NGC of their proposed use of Customer Demand Management (which may result in a Demand change equal to or greater than the Demand Control Notification Level of 12MW of more) in this timescale.

#### OC1.5.5 Control Phase

#### OC1.5.5.1 *Demand Control:*

Under OC6, each Network Operator will notify NGC<u>the System Operator</u> of any Demand Control proposed by itself which may result in a Demand change equal to or greater than the Demand Control Notification Levelof 12MW or more averaged over any half hour on any Grid Supply Point which is planned after 1000 hours, and of any changes to the planned Demand Control notified to NGC<u>the System Operator</u> prior to 1000 hours as soon as possible after the formulation of the new plans;

#### OC1.5.5.2 *Customer Demand Management:*

- (a) Each Supplier will notify NGCthe System Operator of any Customer Demand Management proposed by itself which may result in a Demand change equal to or greater than the Customer Demand Management Notification Levelof 12MW or more averaged over any half hour on any Grid Supply Point which is planned to occur at any time in the Control Phase and of any changes to the planned Customer Demand Management already notified to NGCthe System Operator as soon as possible after the formulation of the new plans.
- (b) The following information is required on a **Grid Supply Point** and half-hourly basis:-
  - (i) the proposed date, time and duration of implementation of **Customer Demand Management;** and
  - (ii) the proposed reduction in **Demand** by use of **Customer Demand Management**.

#### OC1.5.6 **Post-Control Phase**

The following will be supplied to <u>NGCthe System Operator</u> in writing by 0600 hours each day in respect of **Active Power** data and by 1000 hours each day in respect of **Reactive Power** data:

#### (a) **Demand Control:**

Each **Network Operator** will supply MW profiles for the previous calendar day of the amount and duration of **Demand** reduction achieved by itself from the use of **Demand Control** equal to or greater than the **Demand Control Notification Level** of 12MW or more (averaged over any half hour on any **Grid Supply Point**), on a half hourly and **Grid Supply Point** basis.

#### (b) <u>Customer Demand Management:</u>

Each **Supplier** will supply MW profiles of the amount and duration of **Demand** reduction achieved by itself from the use of **Customer Demand Management** equal to or greater than the **Customer Demand Management Notification Level** of 12MW or more (averaged over any half hour on any **Grid Supply Point**) on a half hourly and **Grid Supply Point** basis during the previous calendar day.

#### OC1.6 NGCSYSTEM OPERATOR FORECASTS

- OC1.6.1 The following factors will be taken into account by <u>NGCthe System Operator</u> when conducting <u>NGCGB</u> Demand forecasting in the **Programming Phase** and **Control Phase**:
  - (a) Historic **Demand** data (this includes **NGC Transmission System** losses).
  - (b) Weather forecasts and the current and historic weather conditions.
  - (c) The incidence of major events or activities which are known to NGCthe System Operator in advance.
  - (d) Anticipated interconnection flows across **External Interconnections**.
  - (e) Demand Control equal to or greater than the Demand Control Notification Level of 12MW or more (averaged over any half hour at any Grid Supply Point) proposed to be exercised by Network Operators and of which NGCthe System Operator has been informed.
  - (f) Customer Demand Management equal to or greater than the <u>Customer Demand Management Notification Levelof 12MW or more</u> (averaged over any half hour at any Grid Supply point) proposed to be exercised by Suppliers and of which <u>NGCthe System Operator</u> has been informed.
  - (g) Other information supplied by **Users**.
  - (h) Anticipated **Pumped Storage Unit** demand.
  - (i) the sensitivity of **Demand** to anticipated market prices for electricity.
  - (j) **BM Unit Data** submitted by **BM Participants** to <u>NGCthe System</u> <u>Operator</u> in accordance with the provisions of **BC1** and **BC2**
- OC1.6.2 Taking into account the factors specified in OC1.6.1 NGCthe System Operator uses Demand forecast methodology to produce forecasts of NGCGB Demand. A written record of the use of the methodology must be kept by NGCthe System Operator for a period of at least 12 months.
- OC1.6.3 The methodology will be based upon factors (a), (b) and (c) above to produce, by statistical means, unbiased forecasts of **National Demand**. NGCGB Demand will be calculated from these forecasts but will also take into account factors (d), (e), (f), (g), (h), (i) and (j) above. No other factors are taken into account by NGCthe System Operator, and it will base its NGCGB Demand forecasts on those factors only.

< End of OC1 >

## **OPERATING CODE NO.2**

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# OPERATIONAL PLANNING AND DATA PROVISION

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#### **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 Gensets, the NGC Transmission |
     System and Network Operators' Systems for construction, repair and maintenance;
  - (b) provision by <u>NGCthe System Operator</u> of the Surpluses both for the <u>NGC</u>-Transmission System and System Zones;
  - (c) the provision by Generators of Generation Planning Parameters for Gensets, including CCGT Module Planning Matrices, to <u>NGCthe</u> <u>System Operator</u> 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 NGCGB Demand together | with a reserve of generation to provide a margin, taking into account outages of certain Generating Units, and of parts of the NGC | 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 the 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 Gensets and for the release of parts of the NGC 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** 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.
- OC2.1.4 References in **OC2** to a **Generator's** "best estimate" shall be that **Generator's** best estimate acting as a reasonable and prudent **Generator** in all the circumstances, and references to neutral data is to data which has a 50% probability of being exceeded.
- OC2.1.5 References to NGCthe System Operator planning itsthe Transmission | System outage programme on the basis of the Final Generation Outage Programme, are to NGCthe System Operator 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 NGCthe System Operator, 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 NGCthe System Operator shall, in its reasonable discretion, determine. However, NGCthe System Operator 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 Where in this OC2 a Generator is required to submit an Output Usable forecast of its Large Power Stations or of each of its Gensets, in the case of Embedded Large Power Stations and Embedded Gensets, the Output Usable forecast must be adjusted by the User prior to submission to represent MW at the relevant Grid Supply Point.
- OC2.2 <u>OBJECTIVE</u>
- OC2.2.1 (a) The objective of OC2 is to seek to enable NGCthe System Operator to harmonise outages of Gensets in order that such outages are coordinated (taking account of Medium Power Stations) between Generators and Network Operators, and that such outages are coordinated taking into account NGC-Transmission System outages and other System outages, so far as possible to minimise the number and effect of constraints on the NGC-Transmission System or any other System.
  - (b) In the case of Network Operator' User Systems directly connected to the NGC-Transmission System this means in particular that there will also need to be harmonisation of outages of Embedded Gensets, and NGC 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 <u>NGCthe System</u> <u>Operator</u> of the **Surpluses** both for the <u>NGC</u>-**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 NGCthe **System** Operator from time to time taking into account the disposition of **Generators' Power Stations** within the **System Zones**. The location of the boundaries will be made available to all **Users**. Any **User** may request that NGCthe **System** Operator 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 NGCthe **System Operator** will review the boundaries if, in NGCthe **System Operator's** reasonable opinion, such a review is justified.
- OC2.3 <u>SCOPE</u>
- OC2.3.1 OC2 applies to NGC the System Operator and to Users which in OC2 means:-

- (a) Generators, other than those which only have Embedded Small Power Stations or Embedded Medium Power Stations, (and the term Generator in this OC2 shall be construed accordingly);
- (b) Network Operators; and
- (c) Non-Embedded Customers.
- OC2.4 PROCEDURE
- OC2.4.1 <u>Co-ordination of Outages</u>
- OC2.4.1.1 Under **OC2** the interaction between <u>NGC the System Operator</u> and Users will be as follows:
  - (a) Each Generator and NGC<u>the System Operator</u> NGC<u>the System Operator</u> NGC<u>the System Operator</u> NGC<u>the System Operator</u> Power Stations (both Embedded and non-Embedded) and in respect of outages of other Plant and/or Apparatus directly connected to the NGC-Transmission System;
  - (b) NGCthe System Operator and each Generator
    in respect of NGC Transmission
    System outages relevant to each
    Generator (other than in respect of
    Embedded Small Power Stations
    or Embedded Medium Power
    Stations);
  - (c) NGCthe System Operator and each Network Operator 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) NGC the System Operator and each Network Operator and each Non-Embedded Customer
     in respect of NGC Transmission System outages relevant to the particular Network Operator or Non-Embedded Customers;
  - (e) Each Network Operator and in respect of User System outages each Non-Embedded relevant to NGCthe System Customer and NGCthe Operator.
     System Operator

#### OC2.4.1.2 PLANNING OF GENSET OUTAGES

OC2.4.1.2.1 Operational Planning Phase - Planning for Years 3 to 5 inclusive

In each calendar year:

(a) <u>By the end of week 2</u>

Each Generator will provide NGC the System Operator in writing with:

- (i) a provisional Genset outage programme (covering both Embedded and non-Embedded Large Power Stations) for Year 3 to Year 5 (inclusive) specifying the Genset 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 neutral weekly **Output Usable** forecast of all its **Gensets** for Year 3 to Year 5.
- (b) <u>Between the end of week 2 and the end of week 12</u>

NGC The System Operator will be:

- (i) calculating total winter peak generating capacity assumed to be available to the **Total System** (taking into account the capacity which may be available from **External Interconnections**);
- (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 <u>NGCthe System Operator</u> (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 **Gensets**.

During this period, NGC<u>the System Operator</u> may, as appropriate, contact each **Generator** who has supplied information to seek clarification on points.

(c) <u>By the end of week 12</u>

NGCThe System Operator will:

- (i) having taken into account the information notified to it by **Generators** and taking into account:-
  - (1) NGC Transmission System constraints and outages,
  - (2) **Network Operator System** constraints and outages, known to NGC the System Operator, and
  - (3) the **Output Usable** required, in its view, to meet weekly total MW requirements,

provide each **Generator** in writing with any suggested amendments to the provisional outage programme supplied by the **Generator** which <u>NGC the System Operator</u> believes necessary, and will advise | **Generators** with Large Power Stations of the Surpluses both for the <u>NGC</u>-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 Gensets which are either in that Network Operator's User System or which may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances NGCthe System Operator has notified the Generator concerned at least 48 hours beforehand of its intention to do so (including identifying the Genset concerned).
- (d) By the end of week 14
  - (i) Where a Generator or a Network Operator is unhappy with the suggested amendments to its provisional outage programme (in the case of a Generator) or such potential outages (in the case of a Network Operator) it may contact NGCthe System Operator to explain its concerns and NGCthe System Operator and that Generator or Network Operator will then discuss the problem and seek to resolve it.
  - (ii) The possible resolution of the problem may require NGCthe System
     <u>Operator</u> 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 NGCthe System Operator. 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 NGCthe System Operator in writing with an updated provisional Genset outage programme covering both Embedded and non-Embedded Large Power Stations together with the best estimate neutral weekly Output Usable forecasts (with a description of its statistical basis) for each Genset, in all cases for Year 3 to Year 5 (inclusive). The updated provisional Genset 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

NGC The System Operator will be considering the updated provisional Genset outage programme, together with the best estimate neutral weekly Output Usable forecasts supplied to it by Generators under (e) and their Registered Capacity and will be analysing Operational Planning Margins for the period.

(g) By the end of week 28

NGCThe System Operator will:

- (i) provide each Generator in writing with details of any suggested revisions considered by <u>NGCthe System Operator</u> as being necessary to the updated provisional Genset outage programme supplied to <u>NGCthe System Operator</u> under (e) and will advise Generators with Large Power Stations of the Surpluses for the <u>NGC-Transmission System and System Zones</u> 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 **Gensets** in its **User System**.
- (h) By the end of week 31

Where a **Generator** or a **Network Operator** is unhappy with the revisions suggested to the updated provisional **Genset** outage programme (in the case of a **Generator**) or such update of potential outages (in the case of a **Network Operator**) under (g) it may contact <u>NGCthe **System Operator**</u> to explain its concerns and the provisions set out in (d) above will apply to that process.

(i) By the end of week 42

NGCThe System Operator will:

- provide each Generator in writing with details of suggested revisions considered by NGCthe System Operator as being necessary to the updated provisional Genset outage programme supplied to NGCthe System Operator and will advise Generators with Large Power Stations of the Surpluses for the NGC-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 Gensets which are either in that Network Operator's User System or which may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances NGCthe System Operator has notified the Generator concerned at least 48 hours beforehand of its intention to do so (including identifying the Gensets concerned).
- (j) By the end of week 45

NGC The System Operator will seek to agree a Final Generation Outage Programme for Year 3 to Year 5. If agreement cannot be reached on all aspects, NGC the System Operator and each Generator will record their agreement on as many aspects as have been agreed and NGC the System Operator will advise each Generator with Large Power Stations and each Network Operator, of the Surpluses for the NGC **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** or <del>NGCthe System Operator</del> to abide by it, but <del>NGCthe System Operator</del> will be planning <u>itsthe NGC</u>-Transmission **System** outage programme on the basis of the **Final Generation Outage Programme** and if in the event the **Generator's** outages differ from those contained in the **Final Generation Outage Programme**, or in any way conflict with the <del>NGC</del>-Transmission System outage programme, <del>NGCthe</del> <u>System Operator</u> need not alter <u>itsthe</u> <del>NGC</del>-Transmission System outage programme.

#### OC2.4.1.2.2 Operational Planning Phase - Planning for Year 1 and Year 2

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) <u>By the end of week 10</u>

Each **Generator** will provide NGC<u>the **System Operator**</u> in writing with its previously agreed **Final Generation Outage Programme** updated and best estimate neutral weekly **Output Usable** forecasts for each **Genset** for weeks 1-52 of Years 1 and 2.

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

NGC The System Operator will be considering the updated proposed Genset outage programme together with the estimate of Output Usable supplied by Generators under (a) and will be analysing Operational Planning Margins for the period. Taking these into account together with NGC Transmission System constraints and outages and Network Operator User System constraints and outages known to NGC the System Operator, NGC the System Operator will assess whether the estimates of Output Usable supplied by Generators are sufficient to meet forecast NGCGB Demand plus the Operational Planning Margin.

(c) By the end of week 12

NGC The System Operator will:

- (i) notify each Generator in writing whether the Output Usable estimates are adequate for Years 1 and 2, weeks 1-52, together with suggested changes to its Final Generation Outage Programme where necessary and will advise each Generator with Large Power Stations of the Surpluses both for the NGC 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 weekly Output Usable estimates of Generators for Years 1 and 2, weeks 1- 52 and updated details of potential outages, in each case relating to Gensets which are either in that Network Operator's User System or which

may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances, NGCthe System Operator has notified the Generator concerned at least 48 hours beforehand of its intention to do so (including identifying the Gensets concerned).

(d) By the end of week 14

Where a **Generator** 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 a **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** will provide <u>NGCthe System Operator</u> in writing with revised best estimate neutral **Output Usable** forecasts for each **Genset** for weeks 1-52 of Years 1 and 2.

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

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

(g) By the end of week 39

NGCThe System Operator will:

- (i) notify each Generator in writing whether it accepts the Output Usable estimates for Years 1 and 2, weeks 1-52 and of any suggested changes to its Final Generation Outage Programme where necessary and will advise Generators with Large Power Stations of the Surpluses both for the NGC-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 for Years 1 and 2, weeks 1-52 and updated details of potential outages, in each case relating to Gensets which are either in that Network Operator's User System or which may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances, NGCthe System Operator has notified the Generator concerned at least 48 hours beforehand of its intention to do so (including identifying the Despatch Units concerned).
- (h) By the end of week 46

Where a **Generator** 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 a **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(i) By the end of week 48

NGC the System Operator will seek to agree the revised Final Generation Outage Programme for Year 1 and Year 2. If agreement cannot be reached on all aspects, NGC the System Operator and each Generator will record their agreement on as many aspects as have been agreed and NGC the System Operator will advise each Generator with Large Power Stations 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 or NGC the System Operator to abide by it, but NGC the System Operator will be planning its the NGC Transmission System outage programme on the basis of the Final Generation Outage Programme and if, in the event, a Generator's outages differ from those contained in the Final Generation Outage Programme, or in any way conflict with the NGC Transmission System outage programme, NGC the **System Operator** need not alter the NGC **Transmission System** outage programme.

#### OC2.4.1.2.3 Operational Planning Phase - Planning for Year 0

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

In each week:

(a) <u>By 1600 hours each Wednesday</u>

Each Generator will provide NGCthe System Operator in writing with an update of the Final Generation Outage Programme and a best estimate Output Usable forecast (without allowance being made for Generating Unit breakdown) for each of its Gensets from the 2nd week ahead to the 7th week ahead and a best estimate neutral Output Usable forecast (with allowance being made for Generating Unit breakdown) for each of its Gensets from the 8th week ahead to the 52nd week ahead.

(b) Between 1600 hours Wednesday and 1700 hours Friday

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

(c) On Friday (by 1700 hours)

NGCThe System Operator will:

- notify each Generator with Large Power Stations and Network Operator, in writing if it considers the Output Usable forecasts will give Surpluses and potential export limitations both for the NGC Transmission System and System Zones from the 8th week ahead to the 52nd week ahead;
- (ii) provide each Network Operator, in writing with weekly Output Usable estimates from the 8th week ahead to the 52nd week ahead and updated outages, each relating to Gensets which are either in its User System or which may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System and in such circumstances, NGCthe System Operator shall notify the Generator concerned within 48 hours of so providing (including identifying the Gensets concerned), from the 8th week ahead to the 52nd week ahead.

#### OC2.4.1.2.4 Programming Phase

(a) <u>By 1200 hours each Friday</u>

NGCThe System Operator will notify in writing each Generator with Large Power Stations 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 shall provide NGCthe System Operator in writing (or by such electronic data transmission facilities as have been agreed with NGCthe System Operator) with the best estimate of Output Usable for each Genset 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 subject to Planned Outage or breakdown. For the period 2 to 7 weeks ahead, each Generator shall provide NGCthe System Operator in writing with changes (start and finish dates) to Planned Outage or to the return to service times of each Genset which is subject to breakdown.

#### (c) Between 1100 hours and 1600 hours each Business Day

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

- (d) By 1600 hours each Business Day
  - (i) NGC The System Operator will notify in writing (or by such electronic data transmission facilities as have been agreed with NGC the System Operator) each Generator with Large Power Stations and each Network Operator, of the Surpluses both for the NGC 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 or Network Operator if all the information from all Generators was made available to NGC the System Operator by 1100 hours and if a suitable electronic data transmission facility is in place between NGCthe System Operator and the Generator 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, NGCthe System Operator reserve the right to extend the timescale for issue of the information required under this sub-paragraph to each, or the relevant, Generator and/or Network Operator (as the case may be) provided that such information will in any event be issued by 1800 hours.
  - (ii) provide each Network Operator, where it has an effect on that User, in writing with Output Usable estimates from and including day 2 ahead to day 14 ahead and updated outages, each relating to Gensets which are either in its User System or which may, in the reasonable opinion of NGCthe System Operator, affect the integrity of that Network Operator's User System and in such circumstances, NGCthe System Operator shall notify the Generator concerned within 48 hours of so providing (including identifying the Gensets concerned), for the period from and including day 2 ahead to day 14 ahead.

### OC2.4.1.3 Planning of NGC Transmission System Outages

#### OC2.4.1.3.1 Operational Planning Phase - Planning for Years 3 to 5 inclusive ahead

NGC The System Operator shall plan NGC Transmission System outages required in Years 3 to 5 inclusive required as a result of construction or refurbishment works. This contrasts with the planning of NGC Transmission System outages required in Years 0, 1 and 2 ahead, when NGC the System Operator also takes into account NGC Transmission System outages required as a result of maintenance.

**Users** should bear in mind that NGC the System Operator will be planning itsthe NGC Transmission System outage programme on the basis of the previous year's Final Generation Outage Programme and if in the event a Generator'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 NGC the System Operator, or in any way conflict with the NGC Transmission System outage programme, NGC the System Operator need not alter itsthe NGC Transmission System outage programme.

#### OC2.4.1.3.2 In each calendar year:

#### (a) <u>By the end of week 8</u>

Each **Network Operator** will notify <u>NGCthe System Operator</u> in writing of details of proposed outages in Years 3-5 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 **Gensets Embedded** within that **User System**).

#### (b) By the end of week 13

Each **Generator** will inform <u>NGCthe **System Operator**</u> in writing of proposed outages in Years 3 - 5 ahead of **Generator** owned **Apparatus** (eg. busbar selectors) other than **Gensets**, at each **Grid Entry Point**.

NGC The System Operator will provide to each Network Operator and to each Generator a copy of the information given to NGC the System Operator 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

NGC<u>The System Operator</u> will provide each **Network Operator** in writing with details of proposed outages in Years 3-5 ahead which may, in <u>NGCthe System Operator</u>'s reasonable judgement, affect the performance of its **User System**.

(d) <u>By the end of week 30</u>

Where <u>NGCthe System Operator</u> 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

NGCThe System Operator will draw up a draft NGC-Transmission System outage plan covering the period Years 3 to 5 ahead and NGCthe System Operator will notify each Generator 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 such Generator (other than those aspects which may operationally affect Embedded Small Power Stations or Embedded Medium Power Stations) or Network Operator including in particular proposed start dates and end dates of relevant NGC-Transmission System outages. NGCthe System Operator will also indicate where a need may exist to issue other operational instructions or notifications or Emergency Instructions to Users in accordance with BC2 to allow the security of the NGC-Transmission System to be maintained within the Licence Standards.

#### OC2.4.1.3.3 Operational Planning Phase - Planning for Years I and 2 ahead

Each calendar year <u>NGCthe System Operator</u> shall update the draft <u>NGC</u> | **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) <u>By the end of week 13</u>

**Generators** and **Non-Embedded Customers** will inform <u>NGCthe System</u> <u>Operator</u> in writing of proposed outages for Years 1 and 2 of **Generator** owned **Apparatus** (e.g. busbar selectors) other than **Gensets** or **Non-Embedded Customer** owned **Apparatus**, as the case may be, at each **Grid Supply Point**.

(b) By the end of week 28

NGC The System Operator will provide each Network Operator and each Non-Embedded Customer in writing with details of proposed outages in years 1-2 ahead which may, in NGC the System Operator's reasonable judgement, affect the performance of its User System or the Non-Embedded Customer Apparatus at the Grid Supply Point.

(c) <u>By the end of week 32</u>

Each **Network Operator** will notify <u>NGCthe System Operator</u> in writing with details of proposed outages in Years 1 and 2 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 **Gensets Embedded** within that **User System**).

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

NGC The System Operator will draw up a draft NGC Transmission System outage plan (which for the avoidance of doubt includes NGC Transmission owned Apparatus at the Connection Points).

(e) <u>By the end of week 34</u>

NGC The System Operator will inform:

- (i) each **Network Operator** of the impact on its **User System** in Years 1 and 2, and;
- (ii) each **Generator** of any potential restrictions on its **Large Power Stations** in Years 1 and 2.

NGC The System Operator will provide to each Network Operator and to each Generator a copy of the information given to NGC the System Operator 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** or **Network Operator** is unhappy with the proposed restrictions or impacts 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

NGC The System Operator will draw up a final NGC Transmission System outage plan covering Years 1 and 2.

- (h) By the end of week 49
  - (i) NGC<u>The System Operator</u> will complete the final NGC Transmission System outage plan for Years I and 2. The plan for Year 1 becomes the final plan for Year O when by expiry of time Year I becomes Year 0.
  - (ii) NGCThe System Operator will notify each Generator 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) or Network Operator including in particular proposed start dates and end dates of relevant NGC Transmission System outages. NGCThe System Operator will also indicate where a need may exist to issue other operational instructions or notifications or Emergency Instructions to Users in accordance with BC2 to allow the security of the NGC Transmission System to be maintained within the Licence Standards. NGCThe System Operator 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 NGC-Transmission System outage plan for Year 1, NGC<u>the System Operator</u> will provide to each Generator a copy of the final NGC-Transmission System outage plan for that year. OC2.4.1.3.4 contains provisions whereby updates of the final NGC-Transmission System outage plan are provided. The plan and the updates will be provided by post. It should be noted that the final NGC-Transmission System outage plan for Year 1 and the updates will not give a complete understanding of how the NGC 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) The following paragraph contains alternative requirements on NGCthe System Operator, 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 NGCthe System Operator 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  $\frac{\text{NGCthe System Operator}}{\text{NGCthe System Operator}}$  and the User,  $\frac{\text{NGCthe System Operator}}{\text{System Operator}}$  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 NGC the System Operator will:

- (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 NGC Transmission | System; or

#### System Data Exchange

- (z) as part of a process to facilitate understanding of the operation of the **Total System**,
  - NGCthe System Operator will make available to each Network Operator, the NGC Transmission System Study Network Data Files covering Year 1 and 2 which are of relevance to that User's System;
  - (2) where NGCthe System Operator 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 NGC 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 NGCthe System Operator and may be subject to separate agreements governing the manner of access. In the absence of agreement, the copy of the NGC Transmission System Study Network Data Files will be given to the User on a disc, or in hard copy, as determined by NGCthe System Operator;
  - (3) the data contained in the NGCGB Transmission Study Network Data Files represents NGCthe System Operator's view of indicative operating conditions only and should be used for technical analysis only on the basis that it only represents a view and that operating conditions may be different in the event;
  - (4) NGCthe System Operator will notify each Network Operator, as soon as reasonably practicable after it has updated the NGC Transmission System Study Network Data Files covering Years 1 and 2 that it has done so, when this update falls before the next annual update under this OC2.4.1.3.3(i). NGCThe

**System Operator** 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 NGC **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 NGC 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 Year 0 down to the Programming Phase (and in the case of load transfer capability, also during the Programming Phase)

- (a) The NGC Transmission System outage plan for Year I issued under OC2.4.1.3.3 shall become the plan for Year 0 when by expiry of time Year I becomes Year 0.
- (b) Each Generator or Network Operator or Non-Embedded Customer may at any time during Year O request NGC<u>the System Operator</u> 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, NGC<u>the System Operator</u> shall determine whether the changes are possible and shall notify the Generator, 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 NGC<u>the System Operator</u> of the written request in question.

Where NGCthe System Operator determines that any change so requested is possible and notifies the relevant User accordingly, NGCthe System Operator will provide to each Network Operator and each Generator a copy of the request to which it 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 NGC<u>the System Operator</u>'s request make available to NGC such details of automatic and manual load transfer capability of: 12MW or more (averaged over any half hour) between Grid Supply Points.
  - (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.

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

NGCThe System Operator will also notify changes to information supplied by NGCthe System Operator 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) NGCThe System Operator 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 NGC 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 NGC Transmission System Study |
   Network Data Files covering Year 0 which are of relevance to that User's System.
- (ii) NGCThe System Operator will notify each relevant Network Operator, as soon as reasonably practicable after it has updated the NGC-Transmission System Study Network Data Files covering Year 0, that it has done so. NGCThe System Operator will then make available to each such Network Operator, the updated NGC 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.

NGC The System Operator will also indicate where a need may exist to issue other operational instructions or notifications or Emergency Instructions to Users in accordance with BC2 to allow the security of the NGC Transmission System to be maintained within the Licence Standards.

- (e) In addition, by the end of each month during Year 0, NGCthe System Operator will provide to each Generator a notice containing any revisions to the final NGC-Transmission System outage plan for Year 1, provided to the Generator 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 each Thursday (by 1600 hours)

- (i) NGC The System Operator shall prepare a preliminary NGC Transmission System outage programme for the eighth week ahead, a provisional NGC Transmission System outage programme for the next week ahead and a final day ahead NGC Transmission System outage programme for the following day.
- (ii) NGCThe System Operator will notify each Generator and Network Operator and each Non-Embedded Customer, in writing of those aspects of the preliminary NGC—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 Network Operator and each Non-Embedded Customer including in particular proposed start dates and end dates of relevant NGC—Transmission System outages and changes to information supplied by NGCthe System Operator pursuant to OC2.4.1.3.3(i)(x) and (y) (if OC2.4.1.3.3(i)(z) does not apply).

NGC The System Operator will also indicate where a need may exist to use Operational Intertripping, 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 NGC Transmission System to be maintained within the Licence Standards.

(b) By 1000 hours each Friday

**Generators** and **Network Operators** will discuss with <u>NGCthe System</u> <u>Operator</u> and confirm in writing to <u>NGCthe System Operator</u>, acceptance or otherwise of the requirements detailed under OC2.4.1.3.5.

- (c) By 1600 hours each Friday
  - (i) NGCThe System Operator shall finalise the preliminary NGC Transmission System outage programme up to the seventh week ahead. NGCThe System Operator 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) NGC<u>The System Operator</u> shall finalise the provisional NGC Transmission System outage programme for the next week ahead.
  - (iii) NGC<u>The System Operator</u> shall finalise the NGC\_Transmission System outage programme for the weekend through to the next normal working day.
  - (iv) In each case <u>NGCthe System Operator</u> 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 NGC 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 NGC the System Operator 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 NGC 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 NGC the System Operator may take the outage | despite that Generator's concerns.
- (d) By 1600 hours each Monday, Tuesday and Wednesday
  - (i) NGC The System Operator shall prepare a final NGC Transmission System outage programme for the following day.
  - (ii) NGCThe System Operator 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 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 NGCthe System Operator 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 NGC the System Operator promptly.
- (f) 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.3.2.2. If in accordance with PC.A.3.2.2 an amendment is made, any consequential changes to the Generation Planning Parameters should be notified to NGCthe System Operator promptly.
- (g) The Generator Performance Chart must be on a Generating Unit specific basis at the Generating Unit Stator Terminals and must include details of the Generating Unit transformer parameters and demonstrate the limitation on reactive capability of the System voltage at 3% above nominal. It must include any limitations on output due to the prime mover (both maximum and minimum) and Generating Unit step-up transformer.
- (h) For each CCGT Unit, and any other Generating Unit whose performance varies significantly with ambient temperature, the Generator Performance Chart shall show curves for at least two values of ambient temperature so that NGCthe System Operator 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, as appropriate, equals its Registered Capacity.
- (i) The Generation Planning Parameters supplied under OC2.4.2.1 shall be used by <u>NGCthe System Operator</u> 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 NGCthe System Operator 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 NGCthe System Operator 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.3.2.2. If in accordance with PC.A.3.2.2 an amendment is made, an updated CCGT Module Planning Matrix must be immediately submitted to NGCthe System Operator in accordance with this OC2.4.2.1(b).

The **CCGT Module Planning Matrix** will be used by <u>NGCthe System</u> <u>Operator</u> 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 <u>NGCthe System Operator</u> 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 NGC the System Operator will, taking into account the Final Generation Outage Programme and forecast of neutral Output Usable supplied by each Generator, issue a notice in writing to:-
  - (a) all Generators with Large Power Stations listing any period in which there is likely to be an unsatisfactory System NRAPM; and all Generators with Large Power Stations which may, in NGC the System Operator'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. <u>NGCThe System</u> <u>Operator</u> and each **Generator** will take these into account in seeking to coordinate outages for that period.

#### OC2.4.3.2 (a) <u>By 0900 hours each **Business Day**</u>

Each **Generator** shall provide <u>NGC the **System Operator**</u> in writing with a best estimate of **Genset** inflexibility on a daily basis for the period 2 to 14 days ahead (inclusive).

(b) <u>By 1600 hours each Wednesday</u>

Each **Generator** shall provide <u>NGC the **System Operator**</u> 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
  - If <u>NGCthe System Operator</u>, 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 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 and Network Operators which may, in NGCthe System Operator'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) <u>NGCThe System Operator</u> will then contact Generators in respect of their Large Power Stations to discuss outages as set out in the following paragraphs of this OC2.4.3.2.
- (iii) NGCThe System Operator will contact all Generators in the case of low System NRAPM and will contact Generators in relation to relevant Large Power Stations in the case of low Localised NRAPM. NGCThe System Operator will raise with each Generator 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** 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 (which unlike the remainder of OC2 will constitute a binding agreement), then such Generator will take such outage, as agreed with NGCthe System Operator, and NGCthe System Operator will issue a revised notice in writing to the Generators 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.
- (d) By 1600 hours each day
  - (i) If <u>NGCthe System Operator</u>, 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 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 and Network

**Operators** which may, in **NGC**<u>the **System Operator's**</u> 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) NGCThe System Operator will contact all Generators in respect of their Large Power Stations (or in the case of Localised NRAPM, all Generators which may, in NGCthe System Operator'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).
- (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 NGCthe System Operator's reasonable opinion, too low, then in accordance with the procedures and requirements set out in BC1.5.5 NGCthe System Operator 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 NGCthe System Operator 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) NGCThe System Operator 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 NGCthe System Operator provided the request is within the Existing AGR Plant Flexibility Limit.
  - (ii) NGCThe System Operator 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 NGCthe System Operator 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**, NGC the System Operator 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 NGCthe System Operator 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 NGCthe System Operator 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 Generating Units comprising each Generator's relevant Large Power Stations (the MW amount being determined by NGCthe System Operator but the Generating Units involved being determined by the Generator) will take outages to coincide with such period as NGCthe System Operator 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 NGCthe System Operator. If agreement is not reached, then the provisions of BC2.9.5 may apply.
- OC2.4.5 If in NGC the System Operator'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 <u>Modifications to relay settings</u>

'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 NGC<u>the System Operator</u> 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 NGC<u>the System Operator</u> may have specified) provided the overall capacity at each setting and System requirements can, in NGCthe System Operator'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 NGC the System Operator by 1200 hours on the Friday prior to the Monday on which it would like to institute the changes to seek NGC the System Operator's agreement. If NGC the System Operator agrees, NGC the System Operator 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, NGC<u>the System Operator</u> will take account of any Large Power Station unavailability (as notified under OC2.4.1.2 submissions) in its total Operating Reserve policy.

NGC The System Operator 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, <u>NGCthe System Operator</u> will provide an indication of the level of **Operating Reserve** to be utilised by <u>NGCthe System Operator</u> 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 <u>NGC the **System Operator**</u> 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.



OC2 APPENDIX 1

### 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 <u>Minimum Non-zero time (MNZT)</u>

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 <u>Run-down rates</u>

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.
## OC2.A.2.8 Notice to Deviate from Zero (NDZ)

The period of time normally required to **Synchronise** a **Genset** following instruction from <u>NGCthe System Operator</u> assuming the **Genset** has been **Shutdown** for 48 hours.

## OC2.A.2.9 Minimum Zero time (MZT)

The minimum interval between **De-Synchronising** and **Synchronising** a **Genset**.

#### OC2.A.2.10 Two Shifting Limit

The maximum number of times that a **Genset** may **De-Synchronise** per **Operational Day**.

## OC2.A.2.11 Gas Turbine Units loading parameters

- Loading rate for fast starting
- Loading rate for slow starting

## OC2 APPENDIX 3

## CCGT Module Planning Matrix example form

CCGT MODULE	CCGT GENERATING UNITS AVAILABLE								
OUTPUT US	1 <sup>st</sup> GT	2nd GT	3rd GT	4th GT	5th GT	6th GT	1st ST	2nd ST	3rd ST
AB	OUTPUT USABLE								
	150	150	150				100		
MW									
0MW to 150MW	/								
151MW to 250MW	/						1		
251MW to 300MW	/	/							
301MW to 400MW	/	1					/		
401MW to 450MW	1	1	1						
451MW to 550MW	1	1	1				/		

< End of OC2 >

# **OPERATING CODE NO. 5**

## **TESTING AND MONITORING**

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## OPERATING CODE NO. 5

## TESTING AND MONITORING

#### OC5.1 INTRODUCTION

**Operating Code No. 5** ("**OC5**") specifies the procedures to be followed by <u>NGCthe System Operator</u> in carrying out:

- (a) monitoring
  - (i) of **BM Units** against their expected input or output;
  - (ii) of compliance by **Users** with the **CC** and in the case of response to **Frequency**, **BC3**; and
  - (iii) of the provision by **Users** of **Ancillary Services** which they are required or have agreed to provide; and
- (b) the following tests (which are subject to **System** conditions prevailing on the day):
  - tests on Gensets to test that they have the capability to comply with the CC and, in the case of response to Frequency, BC3 and to provide the Ancillary Services that they are either required or have agreed to provide;
  - (ii) tests on **BM Units**, to ensure that the **BM Units** are available in accordance with their submitted **Export and Import Limits**, **QPNs**, **Joint BM Unit Data** and **Dynamic Parameters**.

The OC5 tests include the Black Start Test procedure.

#### OC5.2 <u>OBJECTIVE</u>

The objectives of **OC5** are to establish:

- (a) that **Users** comply with the **CC**;
- (b) whether BM Units operate in accordance with their expected input or output derived from their Final Physical Notification Data and agreed Bid-Offer Acceptances issued under BC2;
- (c) whether each **BM Unit** is available as declared in accordance with its submitted **Export and Import Limits, QPN, Joint BM Unit Data** and **Dynamic Parameters**; and
- (d) whether **Generators** and **Suppliers** can provide those **Ancillary Services** which they are either required or have agreed to provide.

In certain limited circumstances as specified in this **OC5** the output of **CCGT Units** may be verified, namely the monitoring of the provision of **Ancillary**  Services and the testing of **Reactive Power** and automatic **Frequency** Sensitive Operation.

OC5.3 <u>SCOPE</u>

OC5 applies to NGC the System Operator and to Users, which in OC5 means:

- (a) **Generators**;
- (b) Network Operators;
- (c) Non-Embedded Customers; and
- (d) Suppliers.

## OC5.4 MONITORING

OC5.4.1 Parameters to be monitored

NGC The System Operator will monitor the performance of:

- (a) BM Units against their expected input or output derived from their Final Physical Notification Data and agreed Bid-Offer Acceptances issued under BC2;
- (b) compliance by Users with the CC; and
- (c) the provision by **Users** of **Ancillary Services** which they are required or have agreed to provide.
- OC5.4.2 Procedure for Monitoring
- OC5.4.2.1 In the event that a **BM Unit** fails persistently, in NGCthe System Operator's reasonable view, to follow, in any material respect, its expected input or output or a **User** fails persistently to comply with the **CC** and in the case of response to **Frequency**, **BC3** or to provide the **Ancillary Services** it is required, or has agreed, to provide, NGCthe System Operator shall notify the relevant **User** giving details of the failure and of the monitoring that NGCthe System Operator has carried out.
- OC5.4.2.2 The relevant **User** will, as soon as possible, provide <u>NGCthe System</u> <u>Operator</u> with an explanation of the reasons for the failure and details of the action that it proposes to take to:
  - enable the BM Unit to meet its expected input or output or to provide the Ancillary Services it is required or has agreed to provide, within a reasonable period, or
  - (b) in the case of a Generating Unit or CCGT Module to comply with the CC and in the case of response to Frequency, BC3 or to provide the Ancillary Services it is required or has agreed to provide, within a reasonable period.

- OC5.4.2.3 NGC The System Operator and the User will then discuss the action the User proposes to take and will endeavour to reach agreement as to:
  - (a) any short term operational measures necessary to protect other **Users**; and
  - (b) the parameters which are to be submitted for the **BM Unit** and the effective date(s) for the application of the agreed parameters.
- OC5.4.2.4 In the event that agreement cannot be reached within 10 days of notification of the failure by NGC<u>the System Operator</u> to the User, NGC<u>the System</u> Operator or the User shall be entitled to require a test, as set out in OC5.5 and OC5.6, to be carried out.
- OC5.5 PROCEDURE FOR TESTING
- OC5.5.1 Request For Testing
- OC5.5.1.1 NGCThe System Operator may at any time (although not normally more than twice in any calendar year in respect of any particular **BM Unit**) issue an instruction requiring a **User** to carry out a test, provided NGCthe System Operator has reasonable grounds of justification based upon:
  - (a) a submission of data from a **User** indicating a change in performance; or
  - (b) a statement from a **User** indicating a change in performance; or
  - (c) monitoring carried out in accordance with OC5.4.2; or
  - (d) notification from a **User** of completion of an agreed action from OC5.4.2.
- OC5.5.1.2 The test, referred to in OC5.5.1.1 and carried out at a time no sooner than 48 hours from the time that the instruction was issued, on any one or more of the **User's BM Units** should only be to demonstrate that the relevant **BM Unit**:
  - (a) if active in the Balancing Mechanism, meets the ability to operate in accordance with its submitted Export and Import Limits, QPN, Joint BM Unit Data and Dynamic Parameters and achieve its expected input or output which has been monitored under OC5.4; and
  - (b) meets the requirements of the paragraphs in the **CC** which are applicable to such **BM Units**; and

in the case of a **BM Unit** comprising a **Generating Unit** or a **CCGT Module** meets,

- (c) the requirements for operation in **Frequency Sensitive Mode** and compliance with the requirements for operation in **Limited Frequency Sensitive Mode** in accordance with CC.6.3.3, BC3.5.2 and BC3.7.2; or
- (d) the terms of the applicable **Supplemental Agreement** agreed with the **Generator** to have a **Fast Start Capability**; or
- (e) the **Reactive Power** capability registered with <u>NGCthe System Operator</u> under **OC2** which shall meet the requirements set out in CC.6.3.2. In the

case of a test on a **Generating Unit** within a **CCGT Module** the instruction need not identify the particular **CCGT Unit** within the **CCGT Module** which is to be tested, but instead may specify that a test is to be carried out on one of the **CCGT Units** within the **CCGT Module**.

- OC5.5.1.3 (a) The instruction referred to in OC5.5.1.1 may only be issued if the relevant User has submitted Export and Import Limits which notify that the relevant BM Unit is available in respect of the Operational Day current at the time at which the instruction is issued. The relevant User shall then be obliged to submit Export and Import Limits with a magnitude greater than zero for that BM Unit in respect of the time and the duration that the test is instructed to be carried out, unless that BM Unit would not then be available by reason of forced outage or Planned Outage expected prior to this instruction.
  - (b) In the case of a CCGT Module the Export and Import Limits data must relate to the same CCGT Units which were included in respect of the Operational Day current at the time at which the instruction is issued and must include, in relation to each of the CCGT Units within the CCGT Module, details of the various data set out in BC1.A.1.3 and BC1.A.1.5, which parameters NGC<u>the System Operator</u> will utilise in instructing in accordance with this OC5 in issuing Bid-Offer Acceptances. The parameters shall reasonably reflect the true operating characteristics of each CCGT Unit.
- OC5.5.2 <u>Conduct Of Test</u>
- OC5.5.2.1 The performance of the **BM Unit** will be recorded at <u>NGCthe System Operator</u> **Control Centres** with monitoring at site when necessary, from voltage and current signals provided by the **User** for each **BM Unit** under CC.6.6.1.
- OC5.5.2.2 If monitoring at site is undertaken, the performance of the **BM Unit** will be recorded on a suitable recorder (with measurements, in the case of a **Generating Unit**, taken on the **Generating Unit** Stator Terminals / on the **LV** side of the generator transformer) in the relevant **User's Control Room**, in the presence of a reasonable number of representatives appointed and authorised by NGC the System Operator. If NGC the System Operator or the User requests, monitoring at site will include measurement of the following parameters:
  - (a) for Steam Turbines: governor pilot oil pressure, valve position and steam pressure; or
  - (b) for Gas Turbines: Inlet Guide Vane position, Fuel Valve positions, Fuel Demand signal and Exhaust Gas temperature; or
  - (c) for Hydro Turbines: Governor Demand signal, Actuator Output signal, Guide Vane position; and/or
  - (d) for Excitation Systems: Generator Field Voltage and **Power System Stabiliser** signal where appropriate.
- OC5.5.2.3 The test will be initiated by the issue of instructions, which may be accompanied by a **Bid-Offer Acceptance**, under **BC2** (in accordance with the **Export and Import Limits, QPN, Joint BM Unit Data** and **Dynamic**

**Parameters** which have been submitted for the day on which the test was called, or in the case of a **CCGT Unit**, in accordance with the parameters submitted under OC5.5.1.3). The instructions in respect of a **CCGT Unit** within a **CCGT Module** will be in respect of the **CCGT Unit**, as provided in BC2.

OC5.5.2.4 The **User** is responsible for carrying out the test when requested by <u>NGCthe</u> <u>System Operator</u> in accordance with OC5.5.1 and retains the responsibility for the safety of personnel and plant during the test.

ad in conjunction with the full text under the Grid Code reference. The <b>BM Unit</b> will pass the test	I Code Pass Criteria (to be read in conjunction with the full text under the Grid Code reference)	6.1.5(a) Measured harmonic emissions do not exceed the limits specified in the <b>Bilateral</b> <b>Agreement.</b>	6.1.5(b) The measured maximum <b>Phase (Voltage) Unbalance</b> on the <b>NGCTransmission</b> <b>System</b> should remain below 1%.	6.1.6 Measured infrequent short duration peaks in phase unbalance should not exceed the maximum value stated in the <b>Bilateral Agreement.</b>	<ul> <li>6.1.7(a) Measured voltage fluctuations at the Point of Common Coupling shall not exceed</li> <li>1% of the voltage level for step changes. Measured voltage excursions other than step changes may be allowed up to a level of 3%.</li> </ul>	6.1.7(b) Measured voltage fluctuations at the Point of Common Coupling shall not exceed the Flicker Severity (Short Term) of 0.8 Unit and a Flicker Severity (Long Term) of 0.6 Unit, as set out in Engineering Recommendation P28 as current at the Transfer Date.
e read ıet:	Grid C Refer	CC.6.	CC.6.	CC.6.	CC.6.	CC.6.
pass criteria must bε criteria below are π	Parameter to be Tested	Harmonic Content	Phase Unbalance	Phase Unbalance	Voltage Fluctuations	Flicker
The if th∈				Voltage	Quality	

## OC5.5.3 Test and Monitoring Assessment

Pass Criteria (to be read in conjunction with the full text under the Grid Code reference)	The fault clearance times shall be in accordance with the Bilateral Agreement.	The <b>Back-Up Protection</b> system provided by <b>Generators</b> operates in the times specified in CC.6.2.2.2.2(b). The <b>Back-Up Protection</b> system provided by <b>Network Operators</b> and <b>Non-Embedded Customers</b> operates in the times specified in CC.6.2.3.1.1(b) and with <b>Discrimination</b> as specified in the <b>Bilateral Agreement</b> .	The circuit breaker fail <b>Protection</b> shall initiate tripping so as to interrupt the fault current within 200ms.	The <b>Generating Unit</b> will pass the test if it is within ±5% of the reactive capability registered with <u>NGCthe System Operator</u> under OC2 which shall meet the requirements set out in CC.6.3.2.	The duration of the test will be for a period of up to 60 minutes during which period the <b>System</b> voltage at the <b>Grid Entry Point</b> for the relevant <b>Generating Unit</b> will be maintained by the <b>Generator</b> at the voltage specified pursuant to BC2.8 by adjustment of <b>Reactive Power</b> on the remaining <b>Generating Units</b> , if necessary.	Measurements of the <b>Reactive Power</b> output under steady state conditions should be consistent with Grid Code requirements i.e. fully available within the voltage range ±5% at 400kV, 275kV and 132kV and lower voltages.
Grid Code Reference	CC.6.2.2.2.2(a) CC.6.2.3.1.1(a)	CC.6.2.2.2.2(b) CC.6.2.3.1.1(b)	CC.6.2.2.2.2(c) CC.6.2.3.1.1(c)	CC.6.3.2		CC.6.3.4
Parameter to be Tested	Fault Clearance Times	Back-Up Protection	Circuit Breaker fail <b>Protection</b>	Reactive Capability		
	F	ault Clearance	Re	eactive Capab	vility	

Pass Criteria (to be read in conjunction with the full text under the Grid Code reference)	The Fast Start Capability requirements of the Ancillary Services Agreement for hat Genset are met.	The relevant <b>Generating Unit</b> is <b>Synchronised</b> to the <b>System</b> within two hours of he <b>Auxiliary Gas Turbine(s)</b> or <b>Auxiliary Diesel Engine(s)</b> being required to start.	Aeasurements of the continuously acting automatic excitation control system are equired to demonstrate the provision of constant terminal voltage control of the <b>Benerating Unit</b> without instability over the entire operating range of the <b>Generatin</b> <b>Jnit</b> . The measured performance of the automatic excitation control system should also meet the requirements (including <b>Power System Stabiliser</b> performance) specified in the <b>Bilateral Agreement</b> .
Grid Code Reference		OC.5.7.1	CC.6.3.8(a) & BC2.11.2
Parameter to be Tested	Fast Start	Black Start	Excitation System

Pass Criteria	The <b>Export and Import Limits, QPN, Joint BM Unit Data</b> and <b>Dynamic</b> <b>Parameters</b> under test are within 2½% of the declared value being tested.	The duration of the test will be consistent with and sufficient to measure the relevant expected input or output derived from the <b>Final Physical Notification Data</b> and <b>Bid-Offer Acceptances</b> issued under BC2 which are still in dispute following the procedure in OC5.4.2.	Synchronisation takes place within ±5 minutes of the time it should have achieved Synchronisation.	The duration of the test will be consistent with and sufficient to measure the relevant expected input or output derived from the <b>Final Physical Notification Data</b> and <b>Bid-Offer Acceptances</b> issued under BC2 which are still in dispute following the procedure in OC5.4.2.	Achieves the instructed output and, where applicable, the first and/or second intermediate breakpoints, each within ±3 minutes of the time it should have reached such output and breakpoints from <b>Synchronisation</b> (or break point, as the case may be), calculated from the run-up rates in its <b>Dynamic Parameters</b> .	The duration of the test will be consistent with and sufficient to measure the relevant expected input or output derived from the <b>Final Physical Notification Data</b> and <b>Bid-Offer Acceptances</b> issued under BC2 which are still in dispute following the procedure in OC5.4.2.	Achieves the instructed output within ±5 minutes of the time, calculated from the run-down rates in its <b>Dynamic Parameters.</b>	The duration of the test will be consistent with and sufficient to measure the relevant expected input or output derived from the <b>Final Physical Notification Data</b> and <b>Bid-Offer Acceptances</b> issued under BC2 which are still in dispute following the procedure in OC5.4.2.
Grid Code Reference	0C5		BC2.5.2.3		0C5		0C5	
Parameter to be Tested	Export and Import Limits, ODN Joint RM	Unit Data and Dynamic Parameters	<b>Synchronisation</b> time	Dunganaia	Run-up rates		Run-down rates	

Due account will be taken of any conditions on the **System** which may affect the results of the test. The relevant **User** must, if requested, demonstrate, to NGC<u>the System Operator</u>'s reasonable satisfaction, the reliability of the suitable recorders, disclosing calibration records to the extent appropriate.

## OC5.5.4 Test Failure/Re-test

If the **BM Unit** concerned fails to pass the test the **User** must provide NGCthe System Operator with a written report specifying in reasonable detail the reasons for any failure of the test so far as they are then known to the **User** after due and careful enquiry. This must be provided within five **Business Days** of the test. If a dispute arises relating to the failure, NGCthe System **Operator** and the relevant **User** shall seek to resolve the dispute by discussion, and, if they fail to reach agreement, the **User** may by notice require NGCthe System Operator to carry out a re-test on 48 hours' notice which shall be carried out following the procedure set out in OC5.5.2 and OC5.5.3 and subject as provided in OC5.5.1.3, as if NGCthe System Operator had issued an instruction at the time of notice from the **User**.

## OC5.5.5 Dispute following Re-test

If the **BM Unit** in <u>NGCthe System Operator</u>'s view fails to pass the re-test and a dispute arises on that re-test, either party may use the **Disputes Resolution Procedure** for a ruling in relation to the dispute, which ruling shall be binding.

## OC5.6 DISPUTE RESOLUTION

- OC5.6.1 If following the procedure set out in OC5.5 it is accepted that the **BM Unit** has failed the test or re-test (as applicable), the **User** shall within 14 days, or such longer period as NGCthe System Operator may reasonably agree, following such failure, submit in writing to NGCthe System Operator for approval the date and time by which the **User** shall have brought the **BM Unit** concerned to a condition where it complies with the relevant requirement. NGCThe System Operator will not unreasonably withhold or delay its approval of the **User's** proposed date and time submitted. Should NGCthe System Operator not approve the **User's** proposed date or time (or any revised proposal), the **User** should amend such proposal having regard to any comments NGCthe System Operator may have made and re-submit it for approval.
- OC5.6.2 If a **BM Unit** fails the test, the **User** shall submit revised **Export and Import Limits, QPN, Joint BM Unit Data** and/or **Dynamic Parameters**, or in the case of a **BM Unit** comprising a **Generating Unit** or a **CCGT Module**, the **User** may amend, with NGC the **System Operator**'s approval, the relevant registered parameters of that **Generating Unit** or **CCGT Module**, as the case may be, relating to the criteria, for the period of time until the **BM Unit** can achieve the parameters previously registered, as demonstrated in a re-test.
- OC5.6.3 Once the **User** has indicated to NGC<u>the System Operator</u> the date and time that the **BM Unit** can achieve the parameters previously registered or submitted, NGC<u>the System Operator</u> shall either accept this information or require the **User** to demonstrate the restoration of the capability by means of a repetition of the test referred to in OC5.5.2 by an instruction requiring the **User** on 48 hours notice to carry out such a test. The provisions of this OC5.6 will apply to such further test.

## OC5.7 BLACK START TESTING

## OC.5.7.1 <u>General</u>

- (a) NGCthe System Operator may require a Generator with a Black Start Station to carry out a test (a "Black Start Test") on a Genset in a Black Start Station either while the Black Start Station remains connected to an external alternating current electrical supply (a "BS Unit Test") or while the Black Start Station is disconnected from all external alternating current electrical supplies (a "BS Station Test"), in order to demonstrate that a Black Start Station has a Black Start Capability.
- (b) Where NGC the System Operator requires a Generator with a Black Start Station to carry out a BS Unit Test, NGC the System Operator shall not require the Black Start Test to be carried out on more than one Genset at that Black Start Station at the same time, and would not, in the absence of exceptional circumstances, expect any of the other Genset at the Black Start Station to be directly affected by the BS Unit Test.
- (c) NGCThe System Operator may require a Generator with a Black Start Station to carry out a BS Unit Test at any time (but will not require a BS Unit Test to be carried out more than once in each calendar year in respect of any particular Genset unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test, and will not require a BS Station Test to be carried out more than once in every two calendar years in respect of any particular Genset unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test).
- (d) When NGC the System Operator wishes a Generator with a Black Start Station to carry out a Black Start Test, it shall notify the relevant Generator at least 7 days prior to the time of the Black Start Test with details of the proposed Black Start Test.

#### OC.5.7.2 Procedure for a Black Start Test

The following procedure will, so far as practicable, be carried out in the following sequence for **Black Start Tests**:

## OC.5.7.2.1 BS Unit Tests

- (a) The relevant Generating Unit shall be Synchronised and Loaded;
- (b) All the **Auxiliary Gas Turbines** and/or **Auxiliary Diesel Engines** in the **Black Start Station** in which that **Generating Unit** is situated, shall be **Shutdown**.
- (c) The **Generating Unit** shall be **De-Loaded** and **De-Synchronised** and all alternating current electrical supplies to its **Auxiliaries** shall be disconnected.

- (d) The Auxiliary Gas Turbine(s) or Auxiliary Diesel Engine(s) to the relevant Generating Unit shall be started, and shall re-energise the Unit Board of the relevant Generating Unit.
- (e) The Auxiliaries of the relevant Generating Unit shall be fed by the Auxiliary Gas Turbine(s) or Auxiliary Diesel Engine(s), via the Unit Board, to enable the relevant Generating Unit to return to Synchronous Speed.
- (f) The relevant Generating Unit shall be Synchronised to the System but not Loaded, unless the appropriate instruction has been given by <u>NGCthe System Operator</u> under BC2.

## OC.5.7.2.2 BS Station Test

- (a) All Generating Units at the Black Start Station, other than the Generating Unit on which the Black Start Test is to be carried out, and all the Auxiliary Gas Turbines and/or Auxiliary Diesel Engines at the Black Start Station, shall be Shutdown.
- (b) The relevant **Generating Unit** shall be **Synchronised** and **Loaded**.
- (c) The relevant **Generating Unit** shall be **De-Loaded** and **De--Synchronised**.
- (d) All external alternating current electrical supplies to the Unit Board of the relevant Generating Unit, and to the Station Board of the relevant Black Start Station, shall be disconnected.
- (e) An Auxiliary Gas Turbine or Auxiliary Diesel Engine at the Black Start Station shall be started, and shall re-energise either directly, or via the Station Board, the Unit Board of the relevant Generating Unit.
- (f) The provisions of OC.5.7.2.1 (e) and (f) shall thereafter be followed.
- OC.5.7.2.3 All **Black Start Tests** shall be carried out at the time specified by <u>NGCthe</u> <u>System Operator</u> in the notice given under OC5.7.1(d) and shall be undertaken in the presence of a reasonable number of representatives appointed and authorised by <u>NGCthe System Operator</u>, who shall be given access to all information relevant to the **Black Start Test**.

## OC.5.7.2.4 Failure of a Black Start Test

A Black Start Station shall fail a Black Start Test if the Black Start Test shows that it does not have a Black Start Capability (ie. if the relevant Generating Unit fails to be Synchronised to the System within two hours of the Auxiliary Gas Turbine(s) or Auxiliary Diesel Engine(s) being required to start).

OC.5.7.2.5 If a **Black Start Station** fails to pass a **Black Start Test** the **Generator** must provide NGC the System Operator with a written report specifying in reasonable detail the reasons for any failure of the test so far as they are then known to the **Generator** after due and careful enquiry. This must be provided within five **Business Days** of the test. If a dispute arises relating to the failure, NGC the System Operator and the relevant **Generator** shall seek to resolve the dispute by discussion, and if they fail to reach agreement, the **Generator** may require NGC the System Operator to carry out a further Black Start Test on 48 hours notice which shall be carried out following the procedure set out in OC.5.7.2.1 or OC.5.7.2.2 as the case may be, as if NGC the System Operator had issued an instruction at the time of notice from the Generator.

- OC.5.7.2.6 If the **Black Start Station** concerned fails to pass the re-test and a dispute arises on that re-test, either party may use the **Disputes Resolution Procedure** for a ruling in relation to the dispute, which ruling shall be binding.
- OC.5.7.2.7 If following the procedure in OC.5.7.2.5 and OC.5.7.2.6 it is accepted that the Black Start Station has failed the Black Start Test (or a re-test carried out under OC.5.7.2.5), within 14 days, or such longer period as NGCthe System Operator may reasonably agree, following such failure, the relevant Generator shall submit to NGCthe System Operator in writing for approval, the date and time by which that Generator shall have brought that Black Start Station to a condition where it has a Black Start Capability and would pass the Black Start Test, and NGCthe System Operator will not unreasonably withhold or delay its approval of the Generator's proposed date and time submitted. Should NGCthe System Operator not approve the Generator's proposed date and time (or any revised proposal) the Generator shall revise such proposal having regard to any comments NGCthe System Operator may have made and resubmit it for approval.
- OC.5.7.2.8 Once the **Generator** has indicated to NGCthe System Operator that the **Generating Station** has a **Black Start Capability**, NGCthe System Operator shall either accept this information or require the **Generator** to demonstrate that the relevant **Black Start Station** has its **Black Start Capability** restored, by means of a repetition of the **Black Start Test** referred to in OC5.7.1(d) following the same procedure as for the initial **Black Start Test**. The provisions of this OC.5.7.2 will apply to such test.

<End of OC5>

## **OPERATING CODE NO.6**

**DEMAND CONTROL** 

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## **OPERATING CODE NO.6**

## **DEMAND CONTROL**

#### OC6.1 INTRODUCTION

- OC6.1.1 Operating Code No.6 ("OC6") is concerned with the provisions to be made by Network Operators, and in relation to Non-Embedded Customers by NGCthe System Operator, to permit the reduction of Demand in the event of insufficient Active Power generation being available to meet Demand, or in the event of breakdown or operating problems (such as in respect of System Frequency, System voltage levels or System thermal overloads) on any part of the NGC Transmission System.
- OC6.1.2 **OC6** deals with the following:
  - (a) **Customer** voltage reduction initiated by **Network Operators** (other than following the instruction of <u>NGCthe System Operator</u>);
  - (b) Customer Demand reduction by Disconnection initiated by Network Operators (other than following the instruction of NGC<u>the System</u> Operator);
  - (c) **Demand** reduction instructed by NGCthe System Operator;
  - (d) automatic low frequency **Demand Disconnection**; and
  - (e) emergency manual **Demand Disconnection**.

The term "**Demand Control**" is used to describe any or all of these methods of achieving a **Demand** reduction.

- OC6.1.3 The procedure set out in **OC6** includes a system of warnings to give advance notice of **Demand Control** that may be required by <u>NGCthe System Operator</u> | under this **OC6**.
- OC6.1.4 Data relating to **Demand Control** should include details relating to MW
- OC6.1.5 The Electricity Supply Emergency Code issued by the Department of Trade and Industry, Energy Utilities Directorate, on 30 November 1999 provides that in certain circumstances consumers are given a certain degree of "protection" when rota disconnections are implemented pursuant to a direction under the Energy Act 1976. No such protection can be given in relation to **Demand Control** under the **Grid Code**.
- OC6.1.6 Connections between Large Power Stations and the NGC Transmission | System and between such Power Stations and a User System will not, as far as possible, be disconnected by NGC the System Operator pursuant to the | provisions of OC6 insofar as that would interrupt supplies
  - (a) for the purposes of operation of the **Power Station** (including **Start-Up** and shutting down);

- (b) for the purposes of keeping the **Power Station** in a state such that it could be Started-up when it is off-**Load** for ordinary operational reasons; or
- (c) for the purposes of compliance with the requirements of a Nuclear Site Licence.

**Demand Control** pursuant to this **OC6** therefore applies subject to this exception.

## OC6.2 <u>OBJECTIVE</u>

OC6.2.1 The overall objective of **OC6** is to require the provision of facilities to enable NGCthe System Operator to achieve reduction in **Demand** that will either avoid or relieve operating problems on the NGC Transmission System, in whole or in part, and thereby to enable NGCthe System Operator to instruct **Demand Control** in a manner that does not unduly discriminate against, or unduly prefer, any one or any group of **Suppliers** or **Network Operators** or **Non-Embedded Customers**. It is also to ensure that NGCthe System Operator is notified of any **Demand Control** utilised by **Users** other than following an instruction from NGCthe System Operator.

#### OC6.3 <u>SCOPE</u>

- OC6.3.1 OC6 applies to NGC the System Operator and to Users which in OC6 means:-
  - (a) Generators; and
  - (b) Network Operators.

It also applies to NGCthe System Operator in relation to Non-Embedded Customers.

## OC6.3.2 <u>Explanation</u>

- OC6.3.2.1 (a) Although OC6 does not apply to **Suppliers**, the implementation of **Demand Control** may affect their **Customers.** 
  - (b) In all situations envisaged in OC6, Demand Control is exercisable:-
    - (i) by reference to a **Network Operator's System**; or
    - (ii) by NGCthe System Operator in relation to Non-Embedded Customers.
  - (c) **Demand Control** in all situations relates to the physical organisation of the **Total System**, and not to any contractual arrangements that may exist.
- OC6.3.2.2 (a) Accordingly, **Demand Control** will be exercisable with reference to, for example, five per cent (or such other figure as may be utilised under OC6.5) tranches of **Demand** by a **Network Operator**.

- (b) For a Supplier, whose Customers may be spread throughout a number of User Systems (and the NGC Transmission System), to split its Customers into five per cent (or such other figure as may be utilised under OC6.5) tranches of Demand would not result in Demand Control being implemented effectively on the Total System.
- (c) Where **Demand Control** is needed in a particular area, <u>NGCthe System</u> <u>Operator</u> would not know which **Supplier** to contact and (even if it were to) the resulting **Demand Control** implemented, because of the diversity of contracts, may well not produce the required result.
- OC6.3.2.3 (a) **Suppliers** should note, however, that, although implementation of **Demand Control** in respect of their **Customers** is not exercisable by them, their **Customers** may be affected by **Demand Control**.
  - (b) This will be implemented by Network Operators where the Customers are within User Systems directly connected to the NGC Transmission System and by NGC the System Operator where they are Non-Embedded Customers.
  - (c) The contractual arrangements relating to **Customers** being supplied by **Suppliers** will, accordingly, need to reflect this.
  - (d) The existence of a commercial arrangement for the provision of Customer Demand Management or Commercial Ancillary Services does not relieve a Network Operator from the Demand Control provisions of OC6.5, OC6.6 and OC6.7, which may be exercised from time to time.
- OC6.4 PROCEDURE FOR THE NOTIFICATION OF **DEMAND CONTROL** INITIATED BY **NETWORK OPERATORS** (OTHER THAN FOLLOWING THE INSTRUCTION OF NGCTHE SYSTEM OPERATOR)
- OC6.4.1 Pursuant to the provisions of OC1, in respect of the time periods prior to 1100 hours each day, each Network Operator will notify NGCthe System Operator of all Customer voltage reductions and/or restorations and Demand Disconnection or reconnection, on a Grid Supply Point and half-hourly basis, which will or may, either alone or when aggregated with any other Demand Control planned by that Network Operator, result in a Demand change of 12MW or moregual to or greater than the Demand Control Notification Level averaged over any half hour on any Grid Supply Point, which is planned to be instructed by the Network Operator other than following an instruction from NGCthe System Operator relating to Demand reduction.
- OC6.4.2 Under OC6, each Network Operator will notify NGC<u>the System Operator</u> in writing by 1100 hours each day (or such other time specified by NGC<u>the System</u> Operator from time to time) for the next day (except that it will be for the next 3 days on Fridays and 2 days on Saturdays and may be longer (as specified by NGC<u>the System Operator</u> at least one week in advance) to cover holiday periods) of Customer voltage reduction or Demand Disconnection which will or may result in a Demand change equal to or greater than the Demand Control Notification Levelof 12MW or more averaged over any half hour on any Grid Supply Point, (or which when aggregated with any other Demand Control planned by that Network Operator is equal to or greater than the Demand

<u>Control Notification Level</u>12MW or more), planned to take place during the next **Operational Day**.

- OC6.4.3 When the **Customer** voltage reduction or **Demand Disconnection** which may result in a **Demand** change <u>equal to or greater than the **Demand Control Notification Level**of 12MW or more averaged over any half hour on any **Grid Supply Point** (or which when aggregated with any other **Demand Control** planned or implemented by that **Network Operator** is <u>equal to or greater than</u> <u>the **Demand Control Notification Level**12MW or more</u>) is planned after 1100 hours, each **Network Operator** must notify <del>NGCthe **System Operator**</u> as soon as possible after the decision to implement has been made. If the **Customer** voltage reduction or **Demand Disconnection** is implemented immediately after the decision to implement is made, each **Network Operator** must notify <del>NGCthe</del> <u>System Operator</u> within five minutes of implementation.</u></del>
- OC6.4.4 Where, after NGCthe System Operator has been notified, whether pursuant to OC1, OC6.4.1.2 or OC6.4.1.3, the planned Customer voltage reduction or Demand Disconnection is changed, the Network Operator will notify NGCthe System Operator as soon as possible of the new plans, or if the Customer voltage reduction or Demand Disconnection implemented is different to that notified, the Network Operator will notify NGCthe System Operator of what took place within five minutes of implementation.
- OC6.4.5 Any notification under OC6.4.1.2, OC6.4.1.3 or OC6.4.1.4 will contain the following information on a **Grid Supply Point** and half hourly basis:
  - (a) the proposed (in the case of prior notification) and actual (in the case of subsequent notification) date, time and duration of implementation of the **Customer** voltage reduction or **Demand Disconnection**; and
  - (b) the proposed reduction in **Demand** by use of the **Customer** voltage reduction or **Demand Disconnection**.
- OC6.4.6 Pursuant to the provisions of OC1.5.6, each **Network Operator** will supply to NGC the System Operator details of the amount of **Demand** reduction actually achieved by use of the **Customer** voltage reduction or **Demand Disconnection**.
- OC6.5 PROCEDURE FOR THE IMPLEMENTATION OF **DEMAND CONTROL** ON THE INSTRUCTIONS OF NGCTHE SYSTEM OPERATOR
- OC6.5.1 A NGCTransmission System Warning High Risk of Demand Reduction will, where possible, be issued by NGCthe System Operator, as more particularly set out in OC6.5.4, OC7.4.8 and BC1.5.4 when NGCthe System Operator anticipates that it will or may instruct a Network Operator to implement Demand reduction. It will, as provided in OC6.5.10 and OC7.4.8.2, also be issued to Non-Embedded Customers.
- OC6.5.2 Where NGC the System Operator expects to instruct Demand reduction within the following 30 minutes, NGC the System Operator will where possible, issue a NGC Transmission System Warning - Demand Control Imminent in accordance with OC7.4.8.2(c) and OC7.4.8.6.

- OC6.5.3 (a) Whether a NGC<u>Transmission</u> System Warning High Risk of Demand Reduction or NGC<u>Transmission</u> System Warning - Demand Control Imminent has been issued or not:-
  - (i) provided the instruction relates to not more than 20 per cent of its total **Demand** (measured at the time the **Demand** reduction is required); and
  - (ii) if less than that, is in four integral multiples of between four and six per cent,

each **Network Operator** will abide by the instructions of **NGC**the **System Operator** with regard to **Demand** reduction under OC6.5 without delay.

- (b) The Demand reduction must be achieved within the Network Operator's System as far as possible uniformly across all Grid Supply Points (unless otherwise specified in the NGC<u>Transmission</u> System Warning -High Risk of Demand Reduction) either by Customer voltage reduction or by Demand Disconnection, as soon as possible but in any event no longer than five minutes from the instruction being given by NGC<u>the</u> System Operator.
- (c) Each Network Operator must notify NGC<u>the System Operator</u> in writing by calendar week 24 each year of the integral multiples it will use with effect from the succeeding NGC Financial Year onwards. Thereafter, any changes must be notified in writing to NGC<u>the System Operator</u> at least 10 Business Days prior to the change coming into effect.
- OC6.5.4 (a) Where NGC<u>the System Operator</u> wishes to instruct a **Demand** reduction of more than 20 per cent of a **Network Operator's Demand** (measured at the time the **Demand** reduction is required), it shall, if it is able, issue a NGCTransmission System Warning High Risk of Demand Reduction to the **Network Operator** by 1600 hours on the previous day. The warning will state the percentage level of **Demand** reduction that NGC<u>the System Operator</u> may want to instruct (measured at the time | the **Demand** reduction is required).
  - (b) The NGC<u>Transmission</u> System Warning High Risk of Demand Reduction will specify the percentage of Demand reduction that NGC<u>the</u> <u>System Operator</u> may require in integral multiples of the percentage levels notified by Users under OC6.5.3(c) up to (and including) 20 per cent and of five per cent above 20 per cent and will not relate to more than 40 per cent of Demand (measured at the time the Demand reduction is required) of the Demand on the User System of a Network Operator.
  - (c) If <u>NGCthe System Operator</u> has issued the <u>NGCTransmission</u> System Warning - High Risk of Demand Reduction by 1600 hours on the previous day, on receipt of it the relevant Network Operator shall make available the percentage reduction in Demand specified for use within the period of the <u>NGCTransmission</u> System Warning.
  - (d) If <u>NGCthe System Operator</u> has not issued the <u>NGCTransmission</u> System Warning - High Risk of Demand Reduction by 1600 hours the previous day, but after that time, the Network Operator shall make

available as much of the required **Demand** reduction as it is able, for use within the period of the NGCTransmission System Warning.

- OC6.5.5 (a) If NGCthe System Operator has given a NGCTransmission System Warning High Risk of Demand Reduction to a Network Operator, and has issued it by 1600 hours on the previous day, it can instruct the Network Operator to reduce its Demand by the percentage specified in the NGCTransmission System Warning.
  - (b) NGCThe System Operator accepts that if it has not issued the NGCTransmission System Warning High Risk of Demand Reduction by 1600 hours on the previous day or if it has issued it by 1600 hours on the previous day, but it requires a further percentage of Demand reduction (which may be in excess of 40 per cent of the total Demand on the User System of the Network Operator (measured at the time the Demand reduction is required) from that set out in the NGCTransmission System Warning, it can only receive an amount that can be made available at that time by the Network Operator.
  - (c) Other than with regard to the proviso, the provisions of OC6.5.3 shall apply to those instructions.
- OC6.5.6 Once a **Demand** reduction has been applied by a **Network Operator** at the instruction of <u>NGCthe System Operator</u>, the **Network Operator** may interchange the **Customers** to whom the **Demand** reduction has been applied provided that,
  - (i) the percentage of **Demand** reduction at all times within the **Network Operator's System** does not change; and
  - (ii) at all times it is achieved within the Network Operator's System as far as possible uniformly across all Grid Supply Points (unless otherwise specified in the <u>NGCTransmission</u> System Warning - High Risk of Demand Reduction if one has been issued),

until NGCthe System Operator instructs that Network Operator in accordance with OC6.

- OC6.5.7 Each **Network Operator** will abide by the instructions of <u>NGCthe System</u> <u>Operator</u> with regard to the restoration of **Demand** under OC6.5 without delay. It shall not restore **Demand** until it has received such instruction. The restoration of **Demand** must be achieved as soon as possible and the process of restoration must begin within 2 minutes of the instruction being given by <u>NGCthe System</u> <u>Operator</u>.
- OC6.5.8 In circumstances of protracted shortage of generation or where a statutory instruction has been given (eg. a fuel security period) and when a reduction in **Demand** is envisaged by <u>NGCthe System Operator</u> to be prolonged, <u>NGCthe System Operator</u> will notify the **Network Operator** of the expected duration.
- OC6.5.9 The **Network Operator** will notify <u>NGCthe System Operator</u> in writing that it has complied with <u>NGCthe System Operator</u>'s instruction under OC6.5, within five minutes of so doing, together with an estimation of the **Demand** reduction or restoration achieved, as the case may be.

- OC6.5.10 NGCThe System Operator may itself implement Demand reduction and subsequent restoration on Non-Embedded Customers as part of a Demand Control requirement and it will organise the NGC-Transmission System so that it will be able to reduce Demand by Disconnection of, or Customer voltage reduction to, all or any Non-Embedded Customers. Equivalent provisions to those in OC6.5.4 shall apply to issuing a NGCTransmission System Warning High Risk of Demand Reduction to Non-Embedded Customers, as envisaged in OC7.4.8.
- OC6.5.11 Pursuant to the provisions of OC1.5.6, the **Network Operator** will supply to <u>NGCthe System Operator</u> details of the amount of **Demand** reduction or restoration actually achieved.

## OC6.6 AUTOMATIC LOW FREQUENCY DEMAND DISCONNECTION

- OC6.6.1 Each **Network Operator** will make arrangements that will enable automatic low **Frequency Disconnection** of at least 60 per cent of its total peak **Demand** (based on **Annual ACS Conditions**), in order to seek to limit the consequences of a major loss of generation or an **Event** on the **Total System** which leaves part of the **Total System** with a generation deficit.
- OC6.6.2 (a) The **Demand** of each **Network Operator** which is subject to automatic low **Frequency Disconnection** will be split into discrete MW blocks.
  - (b) The number, location, size and the associated low Frequency settings of these blocks, will be as specified by NGC the System Operator by week | 12 in each calendar year following discussion with the Network Operator in accordance with the Bilateral Agreement and will be reviewed annually by NGC the System Operator.
  - (c) The distribution of the blocks will be such as to give a reasonably uniform Disconnection within the Network Operator's System, as the case may be, across all Grid Supply Points.
  - (d) Each Network Operator will notify NGCthe System Operator in writing by calendar week 24 each year of the details of the automatic low Frequency Disconnection on its User System. The information provided should identify, for each Grid Supply Point at the date and time of the annual peak of the NGCGB Demand at Annual ACS Conditions | (as notified pursuant to OC1.4.2), the frequency settings at which Demand Disconnection will be initiated and amount of Demand disconnected at each such setting.
- OC6.6.3 Where conditions are such that, following automatic low **Frequency Demand Disconnection**, and the subsequent **Frequency** recovery, it is not possible to restore a large proportion of the total **Demand** so disconnected within a reasonable period of time, <u>NGCthe System Operator</u> may instruct a **Network** | **Operator** to implement additional **Demand Disconnection** manually, and restore an equivalent amount of the **Demand** that had been disconnected automatically. The purpose of such action is to ensure that a subsequent fall in **Frequency** will again be contained by the operation of automatic low **Frequency Demand Disconnection**.

- OC6.6.4 Once an automatic low **Frequency Demand Disconnection** has taken place, the **Network Operator** on whose **User System** it has occurred, will not reconnect until <u>NGCthe System Operator</u> instructs that **Network Operator** to do so in accordance with **OC6**.
- OC6.6.5 Once the **Frequency** has recovered, each **Network Operator** will abide by the instructions of <u>NGCthe System Operator</u> with regard to reconnection under OC6.6 without delay. Reconnection must be achieved as soon as possible and the process of reconnection must begin within 2 minutes of the instruction being given by <u>NGCthe System Operator</u>.
- OC6.6.6 (a) **Non-Embedded Customers** (including a **Pumped Storage Generator**) must provide automatic low **Frequency** disconnection, which will be split into discrete blocks.
  - (b) The number and size of blocks and the associated low Frequency settings will be as specified by <u>NGCthe System Operator</u> by week 24 each calendar year following discussion with the Non-Embedded Customers (including a Pumped Storage Generator) in accordance with the relevant Bilateral Agreement.
- OC6.6.7 (a) In addition, **Generators** may wish to disconnect **Generating Units** from the **System**, either manually or automatically, should they be subject to **Frequency** levels which could result in **Generating Unit** damage.
  - (b) This **Disconnection** facility on such **Generating Unit** directly connected to the NGC-Transmission System, will be agreed with NGC the System Operator in accordance with the **Bilateral Agreement**.
  - (c) Any Embedded Power Stations will need to agree this Disconnection facility with the relevant User to whose System that Power Station is connected, which will then need to notify <u>NGC the System Operator</u> of this.
- OC6.6.8 The **Network Operator** or **Non-Embedded Customer**, as the case may be, will notify <u>NGCthe System Operator</u> with an estimation of the **Demand** reduction which has occurred under automatic low **Frequency Demand Disconnection** and similarly notify the restoration, as the case may be, in each case within five minutes of the **Disconnection** or restoration.
- OC6.6.9 Pursuant to the provisions of OC1.5.6 the **Network Operator** and **Non-Embedded Customer** will supply to <u>NGCthe System Operator</u> details of the amount of **Demand** reduction or restoration actually achieved.
- OC6.6.10 (a) In the case of a **User**, it is not necessary for it to provide automatic low **Frequency** disconnection under OC6.6 only to the extent that it is providing, at the time it would be so needed, low **Frequency** disconnection at a higher level of **Frequency** as an **Ancillary Service**, namely if the amount provided as an **Ancillary Service** is less than that required under OC6.6 then the **User** must provide the balance required under OC6.6 at the time it is so needed.
  - (b) The provisions of OC7.4.8 relating to the use of **Demand Control** should be borne in mind by **Users**.

## OC6.7 EMERGENCY MANUAL DISCONNECTION

- OC6.7.1 Each **Network Operator** will make arrangements that will enable it, following an instruction from NGCthe System Operator, to disconnect Customers on its User System under emergency conditions irrespective of Frequency within 30 minutes. It must be possible to apply the Demand Disconnections to individual or specific groups of Grid Supply Points, as determined by NGCthe System Operator.
- OC6.7.2 (a) Each **Network Operator** shall provide <u>NGCthe System Operator</u> in writing by week 24 in each calendar year, in respect of the next following year beginning week 24, on a **Grid Supply Point** basis, with the following information (which is set out in a tabular format in the Appendix):
  - (i) its total peak **Demand** (based on **Annual ACS Conditions)**; and
  - (ii) the percentage value of the total peak **Demand** that can be disconnected (and in the case of that in the first 5 minutes it must include that which can also be reduced by voltage reduction) within timescales of 5/10/15/20/25/30 minutes.
  - (b) The information should include, in relation to the first 5 minutes, as a minimum, the 20% of **Demand** that must be reduced on instruction under OC6.5.
- OC6.7.3 Each **Network Operator** will abide by the instructions of <u>NGCthe System</u> <u>Operator</u> with regard to **Disconnection** under OC6.7 without delay, and the **Disconnection** must be achieved as soon as possible after the instruction being given by <u>NGCthe System Operator</u>, and in any case, within the timescale registered in OC6.7. The instruction may relate to an individual **Grid Supply Point** and/or groups of **Grid Supply Points**.
- OC6.7.4 NGC<u>The System Operator</u> will notify a **Network Operator** who has been instructed under OC6.7, of what has happened on the NGC\_Transmission System to necessitate the instruction, in accordance with the provisions of OC7 and, if relevant, OC10.
- OC6.7.5 Once a **Disconnection** has been applied by a **Network Operator** at the instruction of <u>NGCthe System Operator</u>, that **Network Operator** will not reconnect until <u>NGCthe System Operator</u> instructs it to do so in accordance with **OC6**.
- OC6.7.6 Each **Network Operator** will abide by the instructions of <u>NGCthe System</u> <u>Operator</u> with regard to reconnection under OC6.7 without delay, and shall not reconnect until it has received such instruction and reconnection must be achieved as soon as possible and the process of reconnection must begin within 2 minutes of the instruction being given by <u>NGCthe System Operator</u>.
- OC6.7.7 NGCThe System Operator may itself disconnect manually and reconnect Non-Embedded Customers as part of a Demand Control requirement under emergency conditions.
- OC6.7.8 If <u>NGCthe System Operator</u> determines that emergency manual Disconnection referred to in OC6.7 is inadequate, <u>NGCthe System Operator</u>

may disconnect **Network Operators** and/or **Non-Embedded Customers** at **Grid Supply Points**, to preserve the security of the NGC Transmission System.

OC6.7.9 Pursuant to the provisions of OC1.5.6 the **Network Operator** will supply to NGCthe System Operator details of the amount of **Demand** reduction or restoration actually achieved.

## OC6.8 OPERATION OF THE BALANCING MECHANISM DURING DEMAND CONTROL

**Demand Control** will constitute an **Emergency Instruction** in accordance with BC2.9 and it may be necessary to depart from normal **Balancing Mechanism** operation in accordance with BC2 in issuing **Bid-Offer Acceptances**. NGCThe **System Operator** will inform affected **BM Participants** in accordance with the provisions of **OC7**.

## APPENDIX

## EMERGENCY MANUAL DEMAND REDUCTION/DISCONNECTION SUMMARY SHEET (As set out in OC6.7)

NETWORK OPERATOR \_\_\_\_\_\_ [YEAR] PEAK:\_\_\_\_\_\_

GRID SUPPLY POINT	PEAK MW	%	% OF GROUP DEMAND DISCONNECTION (AND/OR REDUCTION IN THE CASE OF THE FIRST 5 MINUTES) (CUMULATIVE)					
(Name)		TIME (MI 5	INS) 10	15	20	25	30	

Notes: 1. Data to be provided annually by week 24 to cover the following year.

< End of OC6 >

## **OPERATING CODE NO.7**

## OPERATIONAL LIAISON

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### **OPERATING CODE NO.7**

### **OPERATIONAL LIAISON**

### OC7.1 INTRODUCTION

- OC7.1.1 **Operating Code No. 7** ("OC7") sets out the requirements for the exchange of information in relation to **Operations** and/or **Events** on the **Total System** which have had (or may have had) or will have (or may have) an **Operational Effect**:
  - (a) on the NGC Transmission System in the case of an Operation and/or Event occurring on the System of a User or Users; and
  - (b) on the **System** of a **User** or **Users** in the case of an **Operation** and/or **Event** occurring on the NGC Transmission System.

It also describes the types of NGCTransmission System Warning which may be issued by NGCthe System Operator.

- OC7.1.2 The requirement to notify in **OC7** relates generally to notifying of what is expected to happen or what has happened and not the reasons why. However, as **OC7** provides, when an **Event** or **Operation** has occurred on the <del>NGC</del> **Transmission System** which itself has been caused by (or exacerbated by) an **Operation** or **Event** on a **User's System**, <del>NGC the **System Operator** in reporting the **Event** or **Operation** on the <del>NGC</del> **Transmission System** to another **User** can pass on what it has been told by the first **User** in relation to the **Operation** or **Event** on the first **User's System**.</del>
- OC7.1.3 Where an **Event** or **Operation** on the NGC Transmission System falls to be reported by NGC the System Operator to an **Externally Interconnected** System Operator under an Interconnection Agreement, OC7 provides that in the situation where that **Event** or **Operation** has been caused by (or exacerbated by) an **Operation** or **Event** on a **User's System**, NGC the System Operator can pass on what it has been told by the **User** in relation to the **Operation** or **Event** on that **User's System**.
- OC7.1.4 OC7 also deals with **Integral Equipment Tests**.
- OC7.2 <u>OBJECTIVE</u>

The objectives of OC7 are:-

- OC7.2.1 To provide for the exchange of information so that the implications of an **Operation** and/or **Event** can be considered, possible risks arising from it can be assessed and appropriate action taken by the relevant party in order to maintain the integrity of the **Total System**. **OC7** does not seek to deal with any actions arising from the exchange of information, but merely with that exchange.
- OC7.2.2 To provide for types of NGC<u>Transmission</u> System Warnings which may be issued by NGCthe System Operator.
- OC7.2.3 To provide the framework for the information flow and discussion between <u>NGCthe System Operator</u> and certain Users in relation to Integral Equipment | Tests.

### OC7.3 <u>SCOPE</u>

- OC7.3.1 OC7 applies to NGC the System Operator and to Users, which in OC7 means:-
  - (a) Generators (other than those which only have Embedded Small Power Stations or Embedded Medium Power Stations);
  - (b) Network Operators;
  - (c) Non-Embedded Customers;
  - (d) **Suppliers** (for the purposes of NGC<u>Transmission</u> System Warnings); and
  - (e) **Externally Interconnected System Operators** (for the purposes of NGCTransmission System Warnings).

The procedure for operational liaison by NGCthe System Operator with Externally Interconnected System Operators is set out in the Interconnection Agreement with each Externally Interconnected System Operator.

### OC7.4 <u>PROCEDURE</u>

- OC7.4.1 The term **"Operation**" means a scheduled or planned action relating to the operation of a **System** (including an **Embedded Power Station**).
- OC7.4.2 The term "Event" means an unscheduled or unplanned (although it may be anticipated) occurrence on, or relating to, a **System** (including an **Embedded Power Station**) including, without limiting that general description, faults, incidents and breakdowns and adverse weather conditions being experienced.
- OC7.4.3 The term **"Operational Effect"** means any effect on the operation of the relevant other **System** which causes the **Transmission Systems** of NGC or the **Systems of** 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 normally operated in the absence of that effect.
- OC7.4.4 References in this **OC7** to a **System** of a **User** or **User's System** shall not include **Embedded Small Power Stations** or **Embedded Medium Power Stations**, unless otherwise stated.

### OC7.4.5 Requirement to notify **Operations**

### OC7.4.5.1 Operation on the NGC Transmission System

In the case of an **Operation** on the NGC **Transmission System**, which will have (or may have) an **Operational Effect** on the **System(s)** of a **User** or **Users**, NGCthe **System Operator** will notify the **User** or **Users** whose **System(s)** will, or may, in the reasonable opinion of NGCthe System Operator, be affected, in accordance with **OC7**.

### OC7.4.5.2 Operation on a User's System

In the case of an **Operation** on the **System** of a **User** which will have (or may have) an **Operational Effect** on the NGC **Transmission System** (including an equivalent to an **Operation** on the equivalent of a **System** of a **User** or other person connected to that **User's System** which, via that **User System**, will or may have an **Operational Effect** on the NGC **Transmission System**), the **User** will notify NGC the **System Operator** in accordance with **OC7**. Following notification by the **User**, NGC the **System Operator** will notify any other **User** or **Users** on whose **System(s)** the **Operation** will have, or may have, in the reasonable opinion of NGC the **System Operator**, an **Operational Effect**, in accordance with **OC7** and will notify any **Externally Interconnected System Operator** on whose **System** the **Operator**, an **Operational Effect**, if it is required to do so by the relevant **Interconnection Agreement**.

### OC7.4.5.3 <u>Examples of situations where notification by NGCthe System Operator or a</u> <u>User may be required</u>

Whilst in no way limiting the general requirement to notify in advance set out in OC7.4.5.1 and OC7.4.5.2, the following are examples of situations where notification in accordance with OC7.4.5 will be required if they will, or may, have an **Operational Effect**:

- (a) the implementation of a planned outage of **Plant** and/or **Apparatus** which has been arranged pursuant to **OC2**;
- (b) the operation (other than, in the case of a User, at the instruction of <u>NGCthe System Operator</u>) of any circuit breaker or isolator/disconnector | or any sequence or combination of the two; or
- (c) voltage control.

### OC7.4.5.4 **Operations** caused by another **Operation** or by an **Event**

An **Operation** may be caused by another **Operation** or an **Event** on another's **System** (including an **Embedded Power Station**) (or by the equivalent of an **Event** or **Operation** on the **System** of an **Externally Interconnected System Operator** or **Interconnector User**) and in that situation the information to be notified is different to that where the **Operation** arose independently of any other **Operation** or **Event**, as more particularly provided in OC7.4.5.6.

### OC7.4.5.5 Form

A notification and any response to any questions asked under OC7.4.5, of an **Operation** which has arisen independently of any other **Operation** or of an **Event**, shall be of sufficient detail to describe the **Operation** (although it need not state the cause) and to enable the recipient of the notification reasonably to consider and assess the implications and risks arising (provided that, in the case of an **Operation** on a **User's System** which NGCthe System Operator is notifying to other **Users** under OC7.4.5.2, NGCthe System Operator will only pass on what it has been told by the **User** which has notified it) and will include the name of the individual reporting the **Operation** on behalf of NGCthe System Operator or the **User**, as the case may be. The recipient may ask questions to clarify the notification and the giver of the notification will, insofar

as it is able, answer any questions raised, provided that, in the case of an Operation on a User's System which NGC the System Operator is notifying to other Users under OC7.4.5.2, in answering any question, NGC the System **Operator** will not pass on anything further than that which it has been told by the User which has notified it. NGCThe System Operator may pass on the information contained in the notification as provided in OC7.4.5.6.

OC7.4.5.6

- A notification by NGCthe System Operator of an Operation under (a) OC7.4.5.1 which has been caused by another **Operation** (the "first Operation") or by an Event on a User's System, will describe the Operation and will contain the information which NGC the System **Operator** has been given in relation to the first **Operation** or that **Event** by the **User**. The notification and any response to any questions asked (other than in relation to the information which NGC the System Operator is merely passing on from a **User**) will be of sufficient detail to enable the recipient of the notification reasonably to consider and assess the implications and risks arising from the **Operation** on the NGC Transmission System and will include the name of the individual reporting the Operation on behalf of NGC the System Operator. The recipient may ask questions to clarify the notification and NGCthe **System Operator** will, insofar as it is able, answer any questions raised, provided that in relation to the information which NGC the System **Operator** is merely passing on from a **User**, in answering any question NGCthe System Operator will not pass on anything further than that which it has been told by the User which has notified it.
  - (b) Where a User is reporting an Operation or an Event which itself has been caused by an incident or scheduled or planned action affecting (but not on) its System, the notification to NGC the System Operator will contain the information which the User has been given by the person connected to its System in relation to that incident or scheduled or planned action (which the **User** must require, contractually or otherwise, the person connected to its System to give to it) and NGCthe System Operator may pass on the information contained in the notification as provided in this OC7.4.5.6.
- OC7.4.5.7 Where an **Operation** on the NGC **Transmission System** falls to be reported by NGCthe System Operator under an Interconnection Agreement and the **Operation** has been caused by another **Operation** (the "first **Operation**") or by an Event on a User's System, NGC the System Operator will include in that report the information which NGCthe System Operator has been given in relation to the first **Operation** or that **Event** by the **User** (including any information relating to an incident or scheduled or planned action, as provided in OC7.4.5.6).
- OC7.4.5.8 A notification to a User by NGCthe System Operator of an Operation (a) under OC7.4.5.1 which has been caused by the equivalent of an Operation or of an Event on the equivalent of a System of an Externally Interconnected System Operator or Interconnector User, will describe the Operation on the NGC Transmission System and will contain the information which NGCthe System Operator has been given, in relation to the equivalent of an Operation or of an Event on the equivalent of a System of an Externally Interconnected System Operator or Interconnector User, by that Externally Interconnected System Operator or Interconnector User.

- (b) The notification and any response to any question asked (other than in relation to the information which NGC the System Operator is merely passing on from that Externally Interconnected System Operator or **Interconnector User**) will be of sufficient detail to enable the recipient of the notification reasonably to consider and assess the implications and risks arising from the **Operation** on the **NGC Transmission System** and will include the name of the individual reporting the **Operation** on behalf of NGC the System Operator. The recipient may ask questions to clarify the notification and NGC the System Operator will, insofar as it is able, answer any questions raised, provided that, in relation to the information which NGCthe System Operator is merely passing on from an Externally Interconnected System Operator or Interconnector User, in answering any question NGC the System Operator will not pass on anything further than that which it has been told by the Externally Interconnected System Operator or Interconnector User which has notified it.
- OC7.4.5.9 (a) A **Network Operator** may pass on the information contained in a notification to it from NGCthe System Operator under OC7.4.5.1, to a **Generator** with a **Generating Unit** connected to its **System**, or to the operator of another **User System** connected to its **System** (which, for the avoidance of doubt, could be another **Network Operator**), in connection with reporting the equivalent of an **Operation** under the **Distribution Code** (or the contract pursuant to which that **Generating Unit** or other **User System** is connected to the **System** of that **Network Operator**) (if the **Operation** on the NGCTransmission System caused it).
  - (b) A Generator may pass on the information contained in a notification to it from NGCthe System Operator under OC7.4.5.1, to another Generator | with a Generating Unit connected to its System, or to the operator of a User System connected to its System (which, for the avoidance of doubt, could be a Network Operator), if it is required (by a contract pursuant to which that Generating Unit or that User System is connected to its System) to do so in connection with the equivalent of an Operation on its System (if the Operation on the NGC-Transmission | System caused it).
- OC7.4.5.10 (a) Other than as provided in OC7.4.5.9, a **Network Operator** or a **Generator** may not pass on any information contained in a notification to it from NGCthe System Operator under OC7.4.5.1 (and an operator of a **User System** or **Generator** receiving information which was contained in a notification to a **Generator** or a **Network Operator**, as the case may be, from NGCthe System Operator under OC7.4.5.1, as envisaged in OC7.4.5.9 may not pass on this information) to any other person, but may inform persons connected to its System (or in the case of a **Generator** which is also a **Supplier**, inform persons to which it supplies electricity which may be affected) that there has been an incident on the **Total System**, the general nature of the incident (but not the cause of the incident) and (if known and if power supplies have been affected) an estimated time of return to service.
  - (b) In the case of a Generator which has an Affiliate which is a Supplier, the Generator may inform it that there has been an incident on the Total System, the general nature of the incident (but not the cause of the

incident) and (if known and if power supplies have been affected in a particular area) an estimated time of return to service in that area, and that **Supplier** may pass this on to persons to which it supplies electricity which may be affected).

- (c) Each Network Operator and Generator shall use its reasonable endeavours to procure that any Generator or operator of a User System receiving information which was contained in a notification to a Generator or Network Operator, as the case may be, from NGCthe System Operator under OC7.4.5.1, which is not bound by the Grid Code, does not pass on any information other than as provided above.
- OC7.4.5.11 The notification will, if either party requests, be recorded by the sender and dictated to the recipient, who shall record and repeat each phrase as it is received and on completion of the dictation shall repeat back the notification in full to the sender who shall confirm that it has been accurately recorded.
- OC7.4.5.12 <u>Timing</u>

A notification under OC7.4.5 will be given as far in advance as possible and in any event shall be given in sufficient time as will reasonably allow the recipient to consider and assess the implications and risks arising.

### OC7.4.6 Requirements to notify **Events**

### OC7.4.6.1 Events on the NGC Transmission System

In the case of an **Event** on the NGC **Transmission System** which has had (or may have had) an **Operational Effect** on the **System(s)** of a **User** or **Users**, NGC the **System Operator** will notify the **User** or **Users** whose **System(s)** have been, or may have been, in the reasonable opinion of NGC the **System Operator**, affected, in accordance with **OC7**.

### OC7.4.6.2 Events on a User's System

In the case of an **Event** on the **System** of a **User** which has had (or may have had) an **Operational Effect** on the NGC **Transmission System**, the **User** will notify NGC the **System Operator** in accordance with **OC7**.

### OC7.4.6.3 **Events** caused by another **Event** or by an **Operation**

An **Event** may be caused (or exacerbated by) another **Event** or by an **Operation** on another's **System** (including on an **Embedded Power Station**) (or by the equivalent of an **Event** or **Operation** on the equivalent of a **System** of an **Externally Interconnected System Operator** or **Interconnector User**) and in that situation the information to be notified is different to that where the **Event** arose independently of any other **Event** or **Operation**, as more particularly provided in OC7.4.6.7.

OC7.4.6.4 NGC<u>The System Operator</u> or a User, as the case may be, may enquire of the other whether an Event has occurred on the other's System. If it has, and the party on whose System the Event has occurred is of the opinion that it may have had an Operational Effect on the System of the party making the enquiry, it shall notify the enquirer in accordance with OC7.

# OC7.4.6.5 Examples of situations where notification by NGC the System Operator or a User may be required

Whilst in no way limiting the general requirement to notify set out in OC7.4.6.1, OC7.4.6.2 and OC7.4.6.3, the following are examples of situations where notification in accordance with OC7.4.6 will be required if they have an **Operational Effect**:

- (a) where **Plant** and/or **Apparatus** is being operated in excess of its capability or may present a hazard to personnel;
- (b) the activation of any alarm or indication of any abnormal operating condition;
- (c) adverse weather conditions being experienced;
- (d) breakdown of, or faults on, or temporary changes in the capabilities of, **Plant** and/or **Apparatus**;
- (e) breakdown of, or faults on, control, communication and metering equipment; or
- (f) increased risk of inadvertent protection operation.

### <u>Form</u>

- OC7.4.6.6 A notification and any response to any questions asked under OC7.4.6.1 and OC7.4.6.2 of an **Event** which has arisen independently of any other **Event** or of an **Operation**, will describe the **Event**, although it need not state the cause of the **Event**, and, subject to that, will be of sufficient detail to enable the recipient of the notification reasonably to consider and assess the implications and risks arising and will include the name of the individual reporting the **Event** on behalf of NGCthe System Operator or the User, as the case may be. The recipient may ask questions to clarify the notification and the giver of the notification will, insofar as it is able (although it need not state the cause of the **Event**) answer any questions raised. NGCThe System Operator may pass on the information contained in the notification as provided in OC7.4.6.7.
- OC7.4.6.7 A notification (and any response to any guestions asked under (a) OC7.4.6.1) by NGC the System Operator of (or relating to) an Event under OC7.4.6.1 which has been caused by (or exacerbated by) another Event (the "first Event") or by an Operation on a User's System will describe the Event and will contain the information which NGCthe System Operator has been given in relation to the first Event or that Operation by the User (but otherwise need not state the cause of the Event). The notification and any response to any questions asked (other than in relation to the information which NGC the System Operator is merely passing on from a **User**) will be of sufficient detail to enable the recipient of the notification reasonably to consider and assess the implications and risks arising from the **Event** on the **NGC Transmission** System and will include the name of the individual reporting the Event on behalf of NGCthe System Operator. The recipient may ask questions to clarify the notification and NGC the System Operator will, insofar as it is able, answer any questions raised, provided that in relation to the

information which NGC<u>the System Operator</u> is merely passing on from a **User**, in answering any question NGC<u>the System Operator</u> will not pass on anything further than that which it has been told by the **User** which has notified it.

- (b) Where a User is reporting an Event or an Operation which itself has been caused by (or exacerbated by) an incident or scheduled or planned action affecting (but not on) its System the notification to NGCthe System Operator will contain the information which the User has been given by the person connected to its System in relation to that incident or scheduled or planned action (which the User must require, contractually or otherwise, the person connected to its System to give to it) and NGCthe System Operator may pass on the information contained in the notification as provided in this OC7.4.6.7.
- OC7.4.6.8 Where an **Event** on the NGC Transmission System falls to be reported by NGCthe System Operator under an Interconnection Agreement and the **Event** has been caused by (or exacerbated by) another **Event** (the "first **Event**") or by an **Operation** on a **User's System**, NGCthe System Operator will include in that report the information which NGCthe System Operator has been given in relation to the first **Event** or that **Operation** by the **User** (including any information relating to an incident or scheduled or planned action on that **User's System**, as provided in OC7.4.6.7).
- OC7.4.6.9 (a) A notification to a User (and any response to any questions asked under OC7.4.6.1) by NGCthe System Operator of (or relating to) an Event under OC7.4.6.1 which has been caused by (or exacerbated by) the equivalent of an Event or of an Operation on the equivalent of a System of an Externally Interconnected System Operator or Interconnector User, will describe the Event on the NGC Transmission System and will contain the information which NGCthe System Operator has been given, in relation to the equivalent of an Event or of an Operation on the equivalent of a System of an Externally Interconnected System Operator or Interconnector User, by that Externally Interconnected System Operator or Interconnector User (but otherwise need not state the cause of the Event).
  - The notification and any response to any questions asked (other than in (b) relation to the information which NGCthe System Operator is merely passing on from that Externally Interconnected System Operator or Interconnector User) will be of sufficient detail to enable the recipient of the notification reasonably to consider and assess the implications and risks arising from the Event on the NGC Transmission System and will include the name of the individual reporting the Event on behalf of NGC the System Operator. The recipient may ask questions to clarify the notification and NGCthe System Operator will, insofar as it is able (although it need not state the cause of the **Event**) answer any questions raised, provided that, in relation to the information which NGC the System **Operator** is merely passing on from an **Externally Interconnected** System Operator or Interconnector User, in answering any question NGCthe System Operator will not pass on anything further than that which it has been told by the Externally Interconnected System Operator or Interconnector User which has notified it.

- OC7.4.6.10 (a) A **Network Operator** may pass on the information contained in a notification to it from NGC the System Operator under OC7.4.6.1, to a Generator with a Generating Unit connected to its System or to the operator of another User System connected to its System (which, for the avoidance of doubt, could be a Network Operator), in connection with reporting the equivalent of an Event under the Distribution Code (or the contract pursuant to which that Generating Unit or other User System is connected to the System of that Network Operator) (if the Event on the NGC Transmission System caused or exacerbated it).
  - (b) A Generator may pass on the information contained in a notification to it from NGCthe System Operator under OC7.4.6.1, to another Generator | with a Generating Unit connected to its System or to the operator of a User System connected to its System (which, for the avoidance of doubt, could be a Network Operator), if it is required (by a contract pursuant to which that Generating Unit or that User System is connected to its System) to do so in connection with the equivalent of an Event on its System (if the Event on the NGC-Transmission System | caused or exacerbated it).
- OC7.4.6.11 (a) Other than as provided in OC7.4.6.10, a **Network Operator** or a **Generator**, may not pass on any information contained in a notification to it from NGCthe System Operator under OC7.4.6.1 (and an operator of a **User System** or **Generator** receiving information which was contained in a notification to a **Generator** or a **Network Operator**, as the case may be, from NGCthe System Operator under OC7.4.6.1, as envisaged in OC7.4.6.10 may not pass on this information) to any other person, but may inform persons connected to its System (or in the case of a **Generator** which is also a **Supplier**, inform persons to which it supplies electricity which may be affected) that there has been an incident on the **Total System**, the general nature of the incident (but not the cause of the incident) and (if known and if power supplies have been affected) an estimated time of return to service.
  - (b) In the case of a Generator which has an Affiliate which is a Supplier, the Generator may inform it that there has been an incident on the Total System, the general nature of the incident (but not the cause of the incident) and (if known and if power supplies have been affected in a particular area) an estimated time of return to service in that area, and that Supplier may pass this on to persons to which it supplies electricity which may be affected).
  - (c) Each Network Operator and Generator shall use its reasonable endeavours to procure that any Generator or operator of a User System receiving information which was contained in a notification to a Generator or Network Operator, as the case may be, from NGCthe System Operator under OC7.4.6.1, which is not bound by the Grid Code, does not pass on any information other than as provided above.
- OC7.4.6.12 When an **Event** relating to a **Generating Unit**, has been reported to NGC<u>the</u> <u>System Operator</u> by a **Generator** under OC7.4.6 and it is necessary in order for the **Generator** to assess the implications of the **Event** on its **System** more accurately, the **Generator** may ask <u>NGCthe **System Operator**</u> for details of the fault levels from the <u>NGC-Transmission System</u> to that **Generating Unit** at the time of the **Event**, and <u>NGCthe **System Operator**</u> will, as soon as reasonably

practicable, give the **Generator** that information provided that <u>NGCthe System</u> <u>Operator</u> has that information.

OC7.4.6.13 Except in an emergency situation the notification of an **Event** will, if either party requests, be recorded by the sender and dictated to the recipient, who shall record and repeat each phrase as it is received and on completion of the dictation shall repeat the notification in full to the sender who shall confirm that it has been accurately recorded.

<u>Timing</u>

OC7.4.6.14 A notification under OC7.4.6 shall be given as soon as possible after the occurrence of the **Event**, or time that the **Event** is known of or anticipated by the giver of the notification under **OC7**, and in any event within 15 minutes of such time.

### OC7.4.7 Significant Incidents

- OC7.4.7.1 Where a **User** notifies NGC<u>the System Operator</u> of an **Event** under **OC7** which NGC<u>the System Operator</u> considers has had or may have had a significant effect on the NGC\_Transmission System, NGC<u>the System Operator</u> will require the **User** to report that **Event** in writing in accordance with the provisions of **OC10** and will notify that **User** accordingly.
- OC7.4.7.2 Where NGCthe System Operator notifies a User of an Event under OC7 which the User considers has had or may have had a significant effect on that User's System, that User will require NGCthe System Operator to report that Event in writing in accordance with the provisions of OC10 and will notify NGCthe System Operator accordingly.
- OC7.4.7.3 **Events** which NGCthe System Operator requires a User to report in writing pursuant to OC7.4.7.1, and Events which a User requires NGCthe System Operator to report in writing pursuant to OC7.4.7.2, are known as "Significant Incidents".
- OC7.4.7.4 Without limiting the general description set out in OC7.4.7.1 and OC7.4.7.2, a **Significant Incident** will include **Events** having an **Operational Effect** which result in, or may result in, the following:
  - (a) operation of **Plant** and/or **Apparatus** either manually or automatically;
  - (b) voltage outside statutory limits;
  - (c) **Frequency** outside statutory limits; or
  - (c) **System** instability.

### OC 7.4.8 NGCTRANSMISSION SYSTEM WARNINGS

### OC7.4.8.1 Role of NGC Transmission System Warnings

**NGCTransmission System Warnings** as described below provide information relating to **System** conditions or **Events** and are intended to:

- (i) alert **Users** to possible or actual **Plant** shortage, **System** problems and/or **Demand** reductions;
- (ii) inform of the applicable period;
- (iii) indicate intended consequences for **Users**; and
- (iv) enable specified **Users** to be in a state of readiness to react properly to instructions received from NGC the System Operator.

A table of NGCTransmission System Warnings, set out in the Appendix to OC7, summarises the warnings and their useage. In the case of a conflict between the table and the provisions of the written text of OC7, the written text will prevail.

### OC7.4.8.2 Recipients of NGCTransmission System Warnings

- Where NGCTransmission System Warnings, (except those relating to Demand Control Imminent), are applicable to System conditions or Events which have widespread effect, NGCthe System Operator will notify all Users under OC7.
- (b) Where in NGCthe System Operator's judgement System conditions or Events may only have a limited effect, the NGCTransmission System Warning will only be issued to those Users who are or may in NGCthe System Operator's judgement be affected.
- (c) Where a NGCTransmission System Warning Demand Control Imminent is issued it will only be sent to those Users who are likely to receive Demand Control instructions from NGCthe System Operator.

### OC7.4.8.3 <u>Preparatory Action</u>

- (a) Where possible, and if required, recipients of the warnings should take such preparatory action as they deem necessary taking into account the information contained in the <u>NGCTransmission</u> System Warning. All warnings will be of a form determined by <u>NGCthe System Operator</u> and will remain in force from the stated time of commencement until the cancellation, amendment or re-issue, as the case may be, is notified by <u>NGCthe System Operator</u>.
- (b) Where a NGCTransmission System Warning has been issued to a Network Operator and is current, Demand Control should not (subject as provided below) be employed unless instructed by NGCthe System Operator. If Demand Control is, however, necessary to preserve the integrity of the Network Operator's System, then the impact upon the integrity of the Total System should be considered by the Network

**Operator** and where practicable discussed with <u>NGCthe System</u> <u>Operator</u> prior to its implementation.

Where a NGC<u>Transmission</u> System Warning has been issued to a Supplier, further Customer Demand Management (in addition to that previously notified under OC1 - Demand Forecasts) must only be implemented following notification to NGC the System Operator.

- (c) NGCTransmission System Warnings will be issued by fax, to the facsimile number(s) and locations agreed between NGCthe System Operator and Users, or by such electronic data transmission facilities as have been agreed. In the case of Generators with Gensets this will normally be at their Trading Points (if they have notified NGCthe System Operator that they have a Trading Point)
- (d) Users may at times be informed by telephone or other means of NGCTransmission System Warnings and in these circumstances confirmation will be sent to those Users so notified, by fax as soon as possible.

### OC7.4.8.4 Types of NGCTransmission System Warnings

NGCTransmission System Warnings consist of the following types:-

- (i) NGC<u>Transmission</u> System Warning Inadequate System Margin
- (ii) NGCTransmission System Warning High Risk of Demand Reduction
- (iii) NGCTransmission System Warning Demand Control Imminent
- (iv) NGC<u>Transmission</u> System Warning Risk of System Disturbance

### OC7.4.8.5 NGC Transmission System Warning - Inadequate System Margin

A NGC<u>Transmission</u> System Warning - Inadequate System Margin may be issued to Users in accordance with OC7.4.8.2, at times when there is inadequate System Margin, as determined under BC1.5.4. It will contain the following information:

- (i) the period for which the warning is applicable; and
- (ii) the availability shortfall in MW; and
- (iii) intended consequences for **Users**.

### OC 7.4.8.6 NGC Transmission System Warning - High Risk of Demand Reduction

(a) A <u>NGCTransmission</u> System Warning - High Risk of Demand Reduction may be issued to Users in accordance with OC7.4.8.2 at times when there is inadequate System Margin, as determined under BC1.5.4 and in <u>NGCthe System Operator</u>'s judgement there is increased risk of Demand reduction being implemented under OC6.5.1. It will contain the following information in addition to the required information in a NGCTransmission System Warning - Inadequate System Margin:

- (i) the possible percentage level of **Demand** reduction required; and
- (ii) Specify those **Network Operators** and **Non Embedded Customers** who may subsequently receive instructions under OC6.5.1.
- (b) A <u>NGCTransmission</u> System Warning High Risk of Demand Reduction may also be issued by <u>NGCthe System Operator</u> to those Network Operators and Non Embedded Customers who may subsequently receive instructions under OC6.5.1 relating to a Demand reduction in circumstances not related to inadequate System Margin (for example Demand reduction required to manage System overloading).

The NGCTransmission System Warning - High Risk of Demand Reduction will specify the period during which Demand reduction may be required and the part of the Total System to which it applies and any other matters specified in OC6.5.

### OC7.4.8.6.1 Protracted Periods of Generation Shortage

- (a) Whenever NGC the System Operator anticipates that a protracted period of generation shortage may exist a NGC Transmission System Warning
  Inadequate System Margin or High Risk of Demand Reduction may be issued, to give as much notice as possible to those Network Operators and Non Embedded Customers who may subsequently receive instructions under OC6.5.
- (b) A NGCTransmission System Warning High Risk of Demand Reduction will in these instances include an estimate of the percentage of Demand reduction that may be required and the anticipated duration of the Demand reduction. It may also include information relating to estimates of any further percentage of Demand reduction that may be required.
- (c) The issue of the NGC<u>Transmission</u> System Warning Inadequate System Margin or High Risk of Demand Reduction is intended to enable recipients to plan ahead on the various aspects of Demand reduction.

### OC7.4.8.7 NGC Transmission System Warning - Demand Control Imminent

- (a) A NGCTransmission System Warning Demand Control Imminent, relating to a Demand reduction under OC6.5, will be issued by NGCthe System Operator to Users in accordance with OC7.4.8.2. It will specify those Network Operators who may subsequently receive instructions under OC6.5.
- (b) A <u>NGCTransmission</u> System Warning Demand Control Imminent, need not be preceded by any other <u>NGCTransmission</u> System Warning and will be issued when a Demand reduction is expected within the following 30 minutes, but will not cease to have effect after 30

minutes from its issue. However, NGCthe System Operator will either reissue the NGCTransmission System Warning - Demand Control Imminent or cancel the NGCTransmission System Warning - Demand Control Imminent no later than 2 hours from first issue, or from re-issue, as the case may be.

### OC7.4.8.8 NGCTransmission System Warning - Risk of System Disturbance

- (a) A <u>NGCTransmission</u> System Warning Risk of System Disturbance will be issued by <u>NGCthe System Operator</u> to Users who may be affected when <u>NGCthe System Operator</u> knows there is a risk of widespread and serious disturbance to the whole or part of, the <u>NGC</u> Transmission System;
- (b) The <u>NGCTransmission</u> System Warning Risk of System Disturbance will contain such information as <u>NGCthe System Operator</u> deems appropriate;
- (c) for the duration of the NGC<u>Transmission</u> System Warning Risk of System Disturbance, each User in receipt of the NGC<u>Transmission</u> System Warning - Risk of System Disturbance shall take the necessary steps to warn its operational staff and to maintain its Plant and/or Apparatus in the condition in which it is best able to withstand the anticipated disturbance;
- (d) During the period that the NGC<u>Transmission</u> System Warning Risk of System Disturbance is in effect, NGC<u>the System Operator</u> may issue Emergency Instructions in accordance with BC2 and it may be necessary to depart from normal Balancing Mechanism operation in accordance with BC2 in issuing Bid-Offer Acceptances.

### OC7.4.8.9 Cancellation of NGC Transmission System Warning

- (a) NGCThe System Operator will give notification of a Cancellation of NGCTransmission System Warning to all Users issued with the NGCTransmission System Warning when in NGCthe System Operator's judgement System conditions have returned to normal.
- (b) A Cancellation of <u>NGCTransmission</u> System Warning will identify the type of <u>NGCTransmission</u> System Warning being cancelled and the period for which it was issued. The Cancellation of <u>NGCTransmission</u> System Warning will also identify any <u>NGCTransmission</u> System Warnings that are still in force.

### OC7.4.8.10 General Management of NGCTransmission System Warnings

- (a) NGCTransmission System Warnings remain in force for the period specified unless superseded or cancelled by NGCthe System Operator.
- (b) A NGCTransmission System Warning issued for a particular period may be superseded by further related warnings. This will include NGCTransmission System Warning - Inadequate System Margin

being superseded by NGCTransmission System Warning - High Risk of Demand Reduction and vice-versa.

- (c) In circumstances where it is necessary for the period of a NGCTransmission System Warning to be changed:
  - (i) the period applicable may be extended by the issue of a NGC<u>Transmission</u> System Warning with a period which follows | on from the original period, or
  - (ii) revised or updated NGC<u>Transmission</u> System Warnings will be issued where there is an overlap with the period specified in an existing NGC<u>Transmission</u> System Warning, but only if the revised period also includes the full period of the existing NGC<u>Transmission</u> System Warning.

In any other case the existing NGCTransmission System Warning will be cancelled and a new one issued.

(d) A <u>NGCTransmission</u> System Warning is no longer applicable once the period has passed and to confirm this <u>NGCthe System Operator</u> will issue a Cancellation of <u>NGCTransmission</u> System Warning.

### OC7.5 PROCEDURE IN RELATION TO INTEGRAL EQUIPMENT TESTS

OC7.5.1 This section of the **Grid Code** deals with **Integral Equipment Tests**. It is designed to provide a framework for the exchange of relevant information and for discussion between NGC<u>the System Operator</u> and certain Users in relation to **Integral Equipment Tests**.

### OC7.5.2 An Integral Equipment Test :-

- (a) is carried out in accordance with the provisions of this OC7.5 at:
  - i) a **User Site**,
  - ii) an NGC<u>Transmission</u> <u>S</u>site, or,
  - iii) an Embedded Large Power Station;
- (b) will normally be undertaken during commissioning or re-commissioning of **Plant** and/or **Apparatus**;
- (c) may, in the reasonable judgement of the person wishing to perform the test, cause, or have the potential to cause, an **Operational Effect** on a part or parts of the **Total System** but which with prior notice is unlikely to have a materially adverse effect on any part of the **Total System**; and
- (d) may form part of an agreed programme of work.
- OC7.5.3 A set of guidance notes is available from <u>NGCthe System Operator</u> on request, which provide further details on suggested procedures, information flows and responsibilities.

### Notification of an IET

- OC7.5.4 In order to undertake an **Integral Equipment Test** (and subject to OC7.5.8 below), the **User** or **NGC**<u>the **System Operator**</u>, as the case may be, (the proposer) must notify the other (the recipient) of a proposed **IET**. Reasonable advance notification must be given, taking into account the nature of the test and the circumstances which make the test necessary. This will allow recipients time to adequately assess the impact of the **IET** on their **System**.
- OC7.5.5 The notification of the **IET** must normally include the following information:
  - a) the proposed date and time of the **IET**;
  - b) the name of the individual and the organisation proposing the **IET**;
  - c) a proposed programme of testing; and
  - d) such further detail as the proposer reasonably believes the recipient needs in order to assess the effect the **IET** may have on relevant **Plant** and/or **Apparatus**.
- OC7.5.6 In the case of an **IET** in connection with commissioning or re-commissioning, the test should be incorporated as part of any overall commissioning programme agreed between <u>NGCthe System Operator</u> and the **User**.

### Response to notification of an IET

- OC7.5.7 The recipient of notification of an **IET** must respond within a reasonable timescale prior to the start time of the **IET** and will not unreasonably withhold or delay acceptance of the **IET** proposal.
- OC7.5.8 (a) Where NGCthe System Operator receives notification of a proposed IET from a User, NGCthe System Operator will consult those other Users whom it reasonably believes may be affected by the proposed IET to seek their views. Information relating to the proposed IET may be passed on by NGCthe System Operator with the prior agreement of the proposer. However it is not necessary for NGCthe System Operator to obtain the agreement of any such User as IETs should not involve the application of irregular, unusual or extreme conditions. NGCThe System Operator may however consider any comments received when deciding whether or not to agree to an IET.
  - (b) In the case of an Embedded Large Power Station, the Generator must liaise with both <u>NGCthe System Operator</u> and the relevant Network Operator. <u>NGCThe System Operator</u> will not agree to an IET relating to such Plant until the Generator has shown that it has the agreement of the relevant Network Operator.
  - (c) A Network Operator will liaise with NGC<u>the System Operator</u> as necessary in those instances where it is aware of an Embedded Small Power Station or an Embedded Medium Power Station which intends to perform tests which in the reasonable judgement of the Network Operator may cause an Operational Effect on the NGC Transmission System.

- OC7.5.9 The response from the recipient, following notification of an **IET** must be one of the following:
  - a) to accept the **IET** proposal;
  - b) to accept the **IET** proposal conditionally subject to minor modifications such as date and time;
  - c) not to agree the **IET**, but to suggest alterations to the detail and timing of the **IET** that are necessary to make the **IET** acceptable.

### Final confirmation of an IET

- OC7.5.10 The date and time of an **IET** will be confirmed between <u>NGCthe System</u> <u>Operator</u> and the **User**, together with any limitations and restrictions on operation of **Plant** and/or **Apparatus**.
- OC7.5.11 The **IET** may subsequently be amended following discussion and agreement between NGCthe System Operator and the User.

#### Carrying out an IET

- OC7.5.12 **IETs** may only take place when agreement has been reached and must be carried out in accordance with the agreed programme of testing.
- OC7.5.13 The implementation of an **IET** will be notified in accordance with OC7.4.5.
- OC7.5.14 Where elements of the programme of testing change during the **IET**, there must be discussion between the appropriate parties to identify whether the **IET** should continue.

WARNING TYPE	Grid Code	FORMAT	to : for ACTION	to : for INFORMATION	TIMESCALE	WARNING OF/OR CONSEQUENCE	Response From Recipients
NGCTRANSMI SSION SYSTEM WARNING - Inadequate System Margin	OC7.4.8.5	Fax or other electronic means	Generators, Suppliers, Externally Interconnected System Operators	Network Operators, Non-Embedded Customers	All timescales when at the time there is not a high risk of Demand reduction. Primarily 1200 hours onwards for a future period.	Insufficient generation available to meet forecast Demand plus Operating Margin Notification that if not improved Demand reduction may be instructed. (Normal initial warning of insufficient System Margin)	Offers of increased availability from Generators and Interconnector Users. Suppliers notify <del>NGC<u>t</u>he System Operator</del> of any additional Customer Demand Management that they will initiate.
NGCTRANSMISSIO NARNING - High Risk of Demand Reduction	OC7.4.8.6	Fax or other electronic means	Generators, Suppliers, Network Operators, Non- Embedded Customers, Externally Interconnected System Operators		All timescales where there is a high risk of Demand reduction. Primarily 1200 hours onwards for a future period.	Insufficient generation available to meet forecast Demand plus Operating Margin and /or a high risk of Demand reduction being instructed. (May be issued locally as Demand reduction risk only for circuit overloads)	Offers of increased availability from Generators and Interconnector Users. Suppliers notify <del>NGCthe Svstem Operator</del> of any additional Customer Demand Management that they will initiate. Specified Network Operators and Non- Embedded Customers to prepare their Demand reduction arrangements and take actions as necessary to enable compliance with <del>NCCthe</del> System Operator instructions that may follow. (Percentages of Demand reduction above 20 % may not be achieved if <del>NGCthe System</del> Operator bog by the Apoleter of the Apolet
NGCTRANSMISSIO N SYSTEM WARNING - Demand Control Imminent	OC7.4.8.7	Fax/ Telephone or other electronic means	Specified Users only : (to whom an instruction is to be given) Network Operators, Non- Embedded Customers	None	within 30 minutes of anticipated instruction.	Possibility of Demand reduction within 30 minutes.	Network Operators specified to prepare to take action as necessary to enable them to comply with any subsequent <del>NGCINE System</del> Operator instruction for Demand reduction.
NGCTRANSMISSIO N SYSTEM WARNING - Risk of System Disturbance	OC7.4.8.8	Fax/ Telephone or other electronic means	Generators, Network Operators, Non- Embedded Customers, Externally Interconnected System	Suppliers	Control room timescales	Risk of, or widespread system disturbance to whole or part of <del>NGC<u>the</u> <b>Transmission System</b></del>	Recipients take steps to warn operational staff and maintain plant or apparatus such that they are best able to withstand the disturbance.

# NGCTRANSMISSION SYSTEM WARNINGS TABLE OC7 APPENDIX

< End of OC7 >

# **OPERATING CODE NO.9**

# CONTINGENCY PLANNING

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### **OPERATING CODE NO.9**

### CONTINGENCY PLANNING

### OC9.1 INTRODUCTION

**Operating Code No.9** ("**OC9**") covers the following:

### OC9.1.1 Black Starts

The implementation of recovery procedures following a **Total Shutdown** or **Partial Shutdown**.

OC9.1.2 **Re-Synchronisation** of Islands

The **Re-Synchronisation** of parts of the **Total System** which have become **Out** of **Synchronism** with each other but where there is no **Total Shutdown** or **Partial Shutdown**.

### OC9.1.3 Joint System Incident Procedure

The establishment of a communication route and arrangements between senior management representatives of <u>NGC the System Operator</u> and Users involved in, or who may be involved in, an actual or potential serious or widespread disruption to the **Total System** or a part of the **Total System**, which requires, or may require, urgent managerial response, day or night, but which does not fall within the provisions of OC9.1.4.

OC9.1.4 It should be noted that under section 96 of the Act the Secretary of State may give directions to NGCthe System Operator and/or any Generator and/or any Supplier, for the purpose of "mitigating the effects of any civil emergency which may occur" (ie. for the purposes of planning for a civil emergency); a civil emergency is defined in the Act as "any natural disaster or other emergency which, in the opinion of the Secretary of State, is or may be likely to disrupt electricity supplies". Under the Energy Act 1976, the Secretary of State has powers to make orders and give directions controlling the production, supply, acquisition or use of electricity, where an Order in Council under section 3 is in force declaring that there is an actual or imminent emergency affecting electricity supplies. In the event that any such directions are given, or orders made under the Energy Act 1976, the provisions of the Grid Code will be suspended in so far as they are inconsistent with them.

### OC9.2 <u>OBJECTIVE</u>

The overall objectives of **OC9** are:

- OC9.2.1 To achieve, as far as possible, restoration of the **Total System** and associated **Demand** in the shortest possible time, taking into account **Power Station** capabilities, including **Embedded Generating Units**, **External Interconnections** and the operational constraints of the **Total System**.
- OC9.2.2 To achieve the **Re-Synchronisation** of parts of the **Total System** which have become **Out of Synchronism** with each other.
- OC9.2.3 To ensure that communication routes and arrangements are available to enable senior management representatives of NGCthe System Operator and Users, who are authorised to make binding decisions on behalf of NGCthe System

**Operator** or the relevant **User**, as the case may be, to communicate with each other in the situation described in OC9.1.3.

- OC9.3 <u>SCOPE</u>
- OC9.3.1 OC9 applies to NGC the System Operator and to Users, which in OC9 means:-
  - (a) **Generators**;
  - (b) **Network Operators**; and
  - (c) Non-Embedded Customers.
- OC9.3.2 The procedure for the establishment of emergency support/contingency planning between NGCthe System Operator and Externally Interconnected System Operators is set out in the Interconnection Agreement with each Externally Interconnected System Operator.
- OC9.4 BLACK START

### OC9.4.1 Total Shutdown

A "Total Shutdown" is the situation existing when all generation has ceased and there is no electricity supply from External Interconnections. Therefore, the Total System has shutdown with the result that it is not possible for the Total System to begin to function again without <u>NGC the System Operator</u>'s directions relating to a Black Start.

### OC9.4.2 Partial Shutdown

A "Partial Shutdown" is 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. 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 NGC the System Operator 's directions relating to a Black Start.

- OC9.4.3 During a **Total Shutdown** or **Partial Shutdown** and during the subsequent recovery, the **Licence Standards** may not apply and the **Total System** may be operated outside normal voltage and **Frequency** standards.
- OC9.4.4 In a **Total Shutdown** and in a **Partial Shutdown**, it may be necessary for NGCthe System Operator to issue **Emergency Instructions** in accordance with BC2.9 and it may be necessary to depart from normal **Balancing Mechanism** operation in accordance with **BC2** in issuing **Bid-Offer Acceptances**.

### OC9.4.5 Black Start Stations

OC9.4.5.1 Certain Power Stations ("Black Start Stations") are registered, pursuant to the Bilateral Agreement with a User, as having an ability for at least one of its Gensets to Start-Up from Shutdown and to energise a part of the Total System, or be Synchronised to the System, upon instruction from NGCthe System Operator within two hours, without an external electrical power supply ("Black Start Capability").

OC9.4.5.2 For each Black Start Station, a Local Joint Restoration Plan will be produced jointly by NGCthe System Operator, the relevant Generator and Network | Operator in accordance with the provisions of OC9.4.7.11. The Local Joint Restoration Plan will detail 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 local Demand so as to form a Power Island.

### OC9.4.6 Black Start Situation

In the event of a Total Shutdown or Partial Shutdown, NGC<u>the System</u> Operator will, as soon as reasonably practical, inform Users (or, in the case of a Partial Shutdown, Users which in NGC<u>the System Operator</u>'s opinion need to be informed) that a Total Shutdown, or, as the case may be, a Partial Shutdown, exists and that NGC<u>the System Operator</u> intends to implement a Black Start.

### OC9.4.7 Black Start

- OC9.4.7.1 The procedure necessary for a recovery from a **Total Shutdown** or **Partial Shutdown** is known as a **"Black Start**". The procedure for a **Partial Shutdown** is the same as that for a **Total Shutdown** except that it applies only to a part of the **Total System**. It should be remembered that a **Partial Shutdown** may affect parts of the **Total System** which are not themselves shutdown.
- OC9.4.7.2 The complexities and uncertainties of recovery from a **Total Shutdown** or **Partial Shutdown** require that **OC9** is sufficiently flexible in order to accommodate the full range of **Genset** and **Total System** characteristics and operational possibilities, and this precludes the setting out in the **Grid Code** itself of concise chronological sequences. The overall strategy will, in general, include the overlapping phases of establishment of **Genset(s)** at an isolated **Power Station**, together with complementary local **Demand**, termed "**Power Islands**", step by step integration of these **Power Islands** into larger sub-systems and eventually re-establishment of the complete **Total System**.

### NGC System Operator Instructions

- OC9.4.7.3 The procedures for a **Black Start** will, therefore, be those specified by NGCthe System Operator at the time. These will normally recognise any applicable Local Joint Restoration Plan. Users shall abide by NGCthe System Operator 's instructions during a **Black Start** situation, even if these conflict with the general overall strategy outlined in OC9.4.7.2 or any applicable Local Joint Restoration Plan. NGCthe System Operator 's instructions may (although this list should not be regarded as exhaustive) be to a **Black Start Station** relating to the commencement of generation, to a **Network Operator** or **Non-Embedded Customer** relating to the restoration of **Demand**, and to a **Power Station** relating to preparation for commencement of generation when an external power supply is made available to it, and in each case may include the requirement to undertake switching.
- OC9.4.7.4 (a) During a **Black Start** situation, instructions in relation to **Black Start Stations** will be in the format required for **Emergency Instructions** in **BC2**, and will recognise any differing **Black Start** operational capabilities (however termed) set out in the relevant **Ancillary Services Agreement** in preference to the declared operational capability as registered pursuant to **BC1** (or as amended from time to time in accordance with the **BCs**). For

the purposes of these instructions the **Black Start** will be an emergency circumstance under BC2.9. For **Power Stations** which are not **Black Start Stations**, **Bid-Offer Acceptances** will recognise each **BM Unit's Export** and **Import Limits** and **Dynamic Parameters** as submitted pursuant to **BC1** or **BC2** (or as amended from time to time in accordance with the **BCs**).

If during the Demand restoration process any Genset cannot, because of (b) the **Demand** being experienced, keep within its safe operating parameters, the Generator shall, unless a Local Joint Restoration Plan is in operation, inform NGC the System Operator. NGC The System Operator will, where possible, either instruct Demand to be altered or will reconfigure the NGC-Transmission System or will instruct a User to reconfigure its **System** in order to alleviate the problem being experienced by the Generator. If a Local Joint Restoration Plan is in operation, then the arrangements set out therein shall apply. However, NGCthe System **Operator** accepts that any decision to keep a **Genset** operating, if outside its safe operating parameters, is one for the **Generator** concerned alone and accepts that the **Generator** may change generation on that **Genset** if it believes it is necessary for safety reasons (whether relating to personnel or **Plant** and/or **Apparatus**). If such a change is made without prior notice, then the Generator shall inform NGC the System Operator as soon as reasonably practical (unless a Local Joint Restoration Plan is in operation in which case the arrangements set out therein shall apply).

### Embedded Power Stations

OC9.4.7.5 Without prejudice to the provisions of OC9.4.7.8, **Network Operators** with **Embedded Power Stations** will comply with any directions of <del>NGCthe System</del> <u>Operator</u> to restore **Demand** to be met by the **Embedded Power Stations**.

### Local Joint Restoration Plan operation

- OC9.4.7.6 (a) The following provisions apply in relation to a **Local Joint Restoration** Plan. As set out in OC9.4.7.3, NGCthe System Operator may issue instructions which conflict with a Local Joint Restoration Plan. In such cases, these instructions will take precedence over the requirements of the Local Joint Restoration Plan. When issuing such instructions, NGCthe System Operator shall state whether or not it wishes the remainder of the Local Joint Restoration Plan to apply. If, not withstanding that NGCthe **System Operator** has stated that it wishes the remainder of the **Local** Joint Restoration Plan to apply, the Generator or the relevant Network Operator consider that NGCthe System Operator's instructions mean that it is not possible to operate the Local Joint Restoration Plan as modified by those instructions, any of them may give notice to NGCthe System Operator and the other parties to the Local Joint Restoration Plan to this effect and NGCthe System Operator shall immediately consult with all parties to the Local Joint Restoration Plan. Unless all parties to the Local Joint Restoration Plan reach an agreement forthwith as to how the Local Joint Restoration Plan shall operate in those circumstances, operation in accordance with the Local Joint Restoration Plan will terminate.
  - (b) Where NGC the System Operator, as part of a Black Start, has given an instruction to a Black Start Station to initiate Start-Up, the relevant Genset(s) at the Black Start Station will Start-Up in accordance with the Local Joint Restoration Plan.

- (c) NGC The System Operator will advise the relevant Network Operator of the requirement to switch its User System so as to segregate its Demand and to carry out such other actions as set out in the Local Joint Restoration Plan. The relevant Network Operator will then operate in accordance with the provisions of the Local Joint Restoration Plan.
- (d) NGCThe System Operator will carry out switching on the NGC Transmission System and other actions as set out in the Local Joint Restoration Plan.
- Following notification from the Generator that the Black Start Station is (e) ready to accept load, NGC the System Operator will instruct the Black Start Station to energise part of the Total System. The Black Start Station and the relevant Network Operator will then, in accordance with the requirements of the Local Joint Restoration Plan, establish direct communication and agree the output of the relevant Genset(s) and the connection of **Demand** so as to establish a **Power Island**. During this period, the **Generator** will be required to regulate the output of the relevant **Genset(s)** at its **Black Start Station** to the **Demand** prevailing in the Power Island in which it is situated, on the basis that it will (where practicable) seek to maintain the Target Frequency. The Genset(s) at the Black Start Station will (where practical) also seek to follow the requirements relating to **Reactive Power** (which may include the requirement to maintain a target voltage) set out in the Local Joint Restoration Plan.
- (f) Operation in accordance with the Local Joint Restoration Plan will be terminated by NGCthe System Operator (by notifying the relevant Users) | prior to connecting the Power Island to other Power Islands, or to the User System of another Network Operator, or to the synchronising of Gensets at other Power Stations. Operation in accordance with the Local Joint Restoration Plan will also terminate in the circumstances provided for in OC9.4.7.6(a) if an agreement is not reached or if NGCthe System Operator states that it does not wish the remainder of the Local Joint Restoration Plan to apply. Users will then comply with the Bid-Offer Acceptances or Emergency Instructions of NGCthe System Operator.

### Interconnection of Power Islands

- OC9.4.7.7 NGC The System Operator will instruct the relevant Users so as to interconnect Power Islands to achieve larger sub-systems, and subsequently the interconnection of these sub-systems to form an integrated system. This should eventually achieve the re-establishment of the Total System or that part of the Total System subject to the Partial Shutdown, as the case may be.
- OC9.4.7.8 As part of the Black Start strategy each Network Operator with either an Embedded Black Start Station which has established a Power Island within its User System or with any Embedded Power Stations within its User System which have become islanded, may in liaison with NGCthe System Operator | sustain and expand these islands in accordance with the relevant provisions of OC9.5 which shall apply to this OC9.4 as if set out here. They will inform NGCthe System Operator of their actions and will not Re-Synchronise to the NGC Transmission System or any User's System which is already Synchronised to the NGC Transmission System without NGCthe System Operator 's agreement.

### Conclusion of Black Start

OC9.4.7.9 The conclusion of the **Black Start**, and the time of the return to normal operation of the **Total System**, will be determined by <u>NGCthe System Operator</u> who shall inform Users (or where there has been a **Partial Shutdown**, Users which in <u>NGCthe System Operator</u> 's opinion need to be informed) that the **Black Start** situation no longer exists and that normal operation of the **Total System** has begun.

### Externally Interconnected System Operators

OC9.4.7.10 During a Black Start, <u>NGCthe System Operator</u> will, pursuant to the **Interconnection Agreement** with **Externally Interconnected System Operators**, agree with **Externally Interconnected System Operators** when their transmission systems can be **Re-Synchronised** to the **Total System**, if they have become separated.

### OC9.4.7.11 Local Joint Restoration Plan establishment

- (a) In relation to each Black Start Station, NGCthe System Operator, the Network Operator and the relevant Generator will discuss and agree a Local Joint Restoration Plan. Where at the date of the first inclusion of this OC9.4.7.11 into the Grid Code a local plan covering the procedures to be covered in a Local Joint Restoration Plan is in existence and agreed, NGCthe System Operator will discuss this with the Network Operator and the relevant Generator to agree whether it is consistent with the principles set out in this OC9.4.7.11(b) shall apply. If it is not agreed to be so consistent, then it shall become a Local Joint Restoration Plan under this OC9 and the relevant provisions of OC9.4.7.11(b) shall apply. If it is not agreed to be so consistent, then the provisions of OC9.4.7.11(b) shall apply as if there is no Local Joint Restoration Plan in place.
- (b) Where the need for a **Local Joint Restoration Plan** arises when there is none in place, the following provisions shall apply:-
  - (i) NGC<u>The System Operator</u>, the Network Operator and the relevant Generator will discuss and agree the detail of the Local Joint Restoration Plan as soon as the requirement for a Local Joint Restoration Plan is identified by NGC<u>the System Operator</u>. NGC<u>The System Operator</u> will notify all affected Users, and will initiate these discussions.
  - (ii) Each Local Joint Restoration Plan will be in relation to a specific Black Start Station.
  - (iii) The Local Joint Restoration Plan will record which Users and which User Sites are covered by the Local Joint Restoration Plan and set out what is required from <u>NGCthe System Operator</u> and each User should a Black Start situation arise.
  - (iv) Each Local Joint Restoration Plan shall be prepared by <u>NGCthe</u> <u>System Operator</u> to reflect the above discussions and agreement.
  - (v) Each page of the **Local Joint Restoration Plan** shall bear a date of issue and the issue number.

- (vi) When a Local Joint Restoration Plan has been prepared, it shall be sent by <u>NGCthe System Operator</u> to the Users involved for | confirmation of its accuracy.
- (vii) The Local Joint Restoration Plan shall then (if its accuracy has been confirmed) be signed on behalf of <u>NGCthe System Operator</u> and on behalf of each relevant User by way of written confirmation of its accuracy.
- (viii) Once agreed under this OC9.4.7.11, the procedure will become a Local Joint Restoration Plan under the Grid Code and (subject to any change pursuant to this OC9) will apply between NGCthe System Operator and the relevant Users as if it were part of the Grid Code.
- (ix) Once signed, a copy of the Local Joint Restoration Plan will be distributed by <u>NGCthe System Operator</u> to each User which is a | party to it accompanied by a note indicating the date of implementation.
- (x) NGC The System Operator and Users must make the Local Joint Restoration Plan readily available to the relevant operational staff.
- (xi) If NGCthe System Operator, or any User which is a party to a Local Joint Restoration Plan, becomes aware that a change is needed to that Local Joint Restoration Plan, it shall (in the case of NGCthe System Operator) initiate a discussion between NGCthe System Operator and the relevant Users to seek to agree the relevant change. If a User becomes so aware, it shall contact NGCthe System Operator who will then initiate such discussions. The principles applying to establishing a new Local Joint Restoration Plan under this OC9.4.7.11 shall apply to such discussions and to any consequent changes.

### OC9.5 RE-SYNCHRONISATION OF DE-SYNCHRONISED ISLANDS

- OC9.5.1 (a) Where parts of the **Total System** are **Out of Synchronism** with each other (each such part being termed a "**De-Synchronised Island**"), but there is no **Total Shutdown** or **Partial Shutdown**, <u>NGCthe System</u> <u>Operator</u> will instruct **Users** to regulate generation or **Demand**, as the case may be, to enable the **De-Synchronised Islands** to be **Re-Synchronised** and <u>NGCthe System Operator</u> will inform those **Users** when **Re-Synchronisation** has taken place.
  - (b) As part of that process, there may be a need to deal specifically with **Embedded** generation in those **De-Synchronised Islands**. This OC9.5 provides for how such **Embedded** generation should be dealt with.
  - (c) In accordance with the provisions of the BCs, NGC the System Operator may decide that, to enable Re-Synchronisation, it will issue Emergency Instructions in accordance with BC2.9 and it may be necessary to depart from normal Balancing Mechanism operation in accordance with BC2 in issuing Bid-Offer Acceptances.

- (d) The provisions of this OC9.5 shall also apply to the **Re-Synchronising** of parts of the **System** following a **Total** or **Partial Shutdown**, as indicated in OC9.4.
- OC9.5.2 Options

**Embedded** generation in those **De-Synchronised Islands** may be dealt with in three different ways, more than one of which may be utilised in relation to any particular incident:-

- OC9.5.2.1 Indirect Data
  - (a) NGCThe System Operator, each Generator with Synchronised (or connected and available to generate although not Synchronised) Genset(s) in the De-Synchronised Island and the Network Operator in whose User System the De-Synchronised Island is situated shall exchange information as set out in this OC9.5.2.1 to enable NGCthe System Operator to issue a Bid-Offer Acceptance or an Emergency Instruction to that Generator in relation to its Genset(s) in the De-Synchronised Island until Re-Synchronisation takes place, on the basis that it will (where practicable) seek to maintain the Target Frequency.
  - (b) The information to <u>NGCthe System Operator</u> from the Generator will cover its relevant operational parameters as outlined in the BCs and from <u>NGCthe System Operator</u> to the Generator will cover data on Demand and changes in Demand in the De-Synchronised Island.
  - (c) The information from the **Network Operator** to **NGC**<u>the **System Operator**</u> will comprise data on **Demand** in the **De-Synchronised Island**, including data on any constraints within the **De-Synchronised Island**.
  - (d) NGC The System Operator will keep the Network Operator informed of the Bid-Offer Acceptances or Emergency Instructions it is issuing to Genset(s) within the De-Synchronised Island.
- OC9.5.2.2 Direct Data
  - (a) NGCThe System Operator will issue an Emergency Instruction and/or a Bid-Offer Acceptance, to the Generator to "float" local Demand and maintain Frequency at Target Frequency. Under this the Generator will be required to regulate the output of its Genset(s) at the Power Station in question to the Demand prevailing in the De-Synchronised Island in which it is situated, until Re-Synchronisation takes place, on the basis that it will (where practicable) seek to maintain the Target Frequency.
  - (b) The **Network Operator** in whose **User System** the **Power Station** is situated is required to be in contact with the **Generator** at the **Power Station** to supply data on **Demand** changes within the **De-Synchronised Island**.
  - (c) If more than one Genset is Synchronised on the De-Synchronised Island, or is connected to the De-Synchronised Island and available to generate although not Synchronised, the Network Operator will need to liaise with NGCthe System Operator to agree which Genset(s) will be utilised to accommodate changes in Demand in the De-Synchronised Island. The Network Operator will then maintain contact with the relevant Generator (or Generators) in relation to that Genset(s).

(d) The Generator at the Power Station must contact the Network Operator if the level of Demand which it has been asked to meet as a result of the Emergency Instruction and/or Bid-Offer Acceptance to "float" and the detail on Demand passed on by the Network Operator, is likely to cause problems for safety reasons (whether relating to personnel or Plant and/or Apparatus) in the operation of its Genset(s), in order that the Network Operator can alter the level of Demand which that Generator needs to meet. Any decision to operate outside any relevant parameters is one entirely for the Generator.

### OC9.5.2.3 <u>Control Features</u>

- (a) A system may be established in relation to a part of the Network Operator's User System, if agreed between NGCthe System Operator and the Network Operator and the relevant Generator(s), whereby upon a defined fault(s) occurring, manual or automatic control features will operate to protect the relevant Network Operator's User System and Genset(s) and simplify the restoration of Demand in the De-Synchronised Island.
- (b) In agreeing the establishment of such a system of control features <u>NGCthe</u> <u>System Operator</u> will need to consider its impact on the operation of the <u>NGC</u>-Transmission System.

#### OC9.5.2.4 Absence of Control Features System

If a system of control features under OC9.5.2.3 has not been agreed as part of an **OC9 De-Synchronised Island Procedure** under OC9.5.4 below, <u>NGCthe</u> <u>System Operator</u> may choose to utilise the procedures set out in OC9.5.2.1 or OC9.5.2.2, or may instruct the **Genset(s)** (or some of them) in the **De-Synchronised Island** to **De-Synchronise.** 

#### OC9.5.3 Choice of Option

In relation to each of the methods set out in OC9.5.2, where a **De-Synchronised Island** has come into existence and where an **OC9 De-Synchronised Island Procedure** under OC9.5.4 has been agreed, <u>NGCthe System Operator</u>, the | **Network Operator** and relevant **Generator(s)** will operate in accordance with that **OC9 De-Synchronised Islands Procedure** unless <u>NGCthe System Operator</u> | considers that the nature of the **De-Synchronised Island** situation is such that either:-

- (i) the **OC9 De-Synchronised Island Procedure** does not cover the situation; or
- (ii) the provisions of the **OC9 De-Synchronised Island Procedure** are not appropriate,

in which case NGCthe System Operator will instruct the relevant Users and the Users will comply with NGCthe System Operator's instructions (which in the case of Generators will relate to generation and in the case of Network Operators will relate to Demand).

### OC9.5.4 <u>Agreeing Procedures</u>

In relation to each relevant part of the **Total System**, <u>NGCthe System Operator</u>, the **Network Operator** and the relevant **Generator** will discuss and may agree a local procedure (an **"OC9 De-Synchronised Island Procedure**").

- OC9.5.4.1 Where there is no relevant local procedure in place at 12th May 1997, or in the case where the need for an **OC9 De-Synchronised Island Procedure** arises for the first time, the following provisions shall apply:-
  - (a) NGCThe System Operator, the Network Operator(s) and the relevant Generator(s) will discuss the need for, and the detail of, the OC9 De-Synchronised Island Procedure. As soon as the need for an OC9 De-Synchronised Island Procedure is identified by NGCthe System Operator or a User, and the party which identifies such a need will notify all affected Users (and NGCthe System Operator, if that party is a User), and NGCthe System Operator will initiate these discussions.
  - (b) Each OC9 De-Synchronised Island Procedure will be in relation to a specific Grid Supply Point, but if there is more than one Grid Supply Point between NGC the System Operator and the Network Operator then the OC9 De-Synchronised Island Procedure may cover all relevant Grid Supply Points.
  - (c) The OC9 De-Synchronised Island Procedure will:-
    - (i) record which **Users** and which **User Sites** are covered by the **OC9 De-Synchronised Island Procedure**;
    - (ii) record which of the three methods set out in OC9.5 (or combination of the three) shall apply, with any conditions as to applicability being set out as well;
    - (iii) set out what is required from <u>NGCthe System Operator</u> and each User should a **De-Synchronised Island** arise; and
    - (iv) set out what action should be taken if the OC9 De-Synchronised Island Procedure does not cover a particular set of circumstances and will reflect that in the absence of any specified action, the provisions of OC9.5.3 will apply.
  - (d) Each **OC9 De-Synchronised Island Procedure** shall be prepared by NGCthe System Operator to reflect the above discussions.
  - (e) Each page of the **OC9 De-Synchronised Island Procedure** shall bear a date of issue and the issue number.
  - (f) When an OC9 De-Synchronised Island Procedure is prepared, it shall be sent by NGCthe System Operator to the Users involved for confirmation of its accuracy.
  - (g) The OC9 De-Synchronised Island Procedure shall then be signed on behalf of NGCthe System Operator and on behalf of each relevant User by way of written confirmation of its accuracy.

- (h) Once agreed under this OC9.5.4.1, the procedure will become an OC9 De-Synchronised Island Procedure under the Grid Code and (subject to any change pursuant to this OC9) will apply between NGC<u>the System</u> Operator and the relevant Users as if it were part of the Grid Code.
- (i) Once signed, a copy will be distributed by <u>NGCthe System Operator</u> to each **User** which is a party accompanied by a note indicating the issue number and the date of implementation.
- (j) NGCThe System Operator and Users must make the OC9 De-Synchronised Island Procedure readily available to the relevant operational staff.
- (k) If a new User connects to the Total System and needs to be included with an existing OC9 De-Synchronised Island Procedure, NGCthe System Operator will initiate a discussion with that User and the Users which are parties to the relevant OC9 De-Synchronised Island Procedure. The principles applying to a new OC9 De-Synchronised Island Procedure under this OC9.5.4.1 shall apply to such discussions and to any consequent changes.
- (I) If NGCthe System Operator, or any User which is a party to an OC9 De-Synchronised Island Procedure, becomes aware that a change is needed to that OC9 De-Synchronised Island Procedure, it shall (in the case of NGCthe System Operator) initiate a discussion between NGCthe System Operator and the relevant Users to seek to agree the relevant change. The principles applying to establishing a new OC9 De-Synchronised Island Procedure under this OC9.5.4.1 shall apply to such discussions and to any consequent changes. If a User becomes so aware, it shall contact NGCthe System Operator who will then initiate such discussions.
- (m) If in relation to any discussions, agreement cannot be reached between NGCthe System Operator and the relevant Users, NGCthe System Operator will operate the System on the basis that it will discuss which of the three methods set out in OC9.5.2.1 to OC9.5.2.3 would be most appropriate at the time, if practicable. The complexities and uncertainties of recovery from a De-Synchronised Island means that NGCthe System Operator will decide, having discussed the situation with the relevant Users and taking into account the fact that the three methods may not cover the situation or be appropriate, the approach which is to be followed. NGCthe System Operator will instruct the relevant Users and the Users will comply with NGCthe System Operator's instructions as provided in OC9.5.3.
- OC9.5.4.2 Where there is a relevant local procedure in place at 12th May 1997, the following provisions shall apply:-
  - (a) NGC The System Operator and the Network Operator and the relevant | Generator(s) will discuss the existing procedure to see whether it is consistent with the principles set out in this OC9.5.
  - (b) If it is, then it shall become an **OC9 De-Synchronised Island Procedure** under this OC9, and the relevant provisions of OC9.5.4.1 shall apply.
  - (c) If it is not, then the parties will discuss what changes are needed to ensure that it is consistent, and once agreed the procedure will become an **OC9**

**De-Synchronised Island Procedure** under this OC9, and the relevant provisions of OC9.5.4.1 shall apply.

- (d) If agreement cannot be reached between NGCthe System Operator and the relevant Users after a reasonable period of time, the existing procedure will cease to apply and NGCthe System Operator will operate the System on the basis that it will discuss which of the three methods set out in OC9.5.2.1 to OC9.5.2.3 would be most appropriate at the time, if practicable. The complexities and uncertainties of recovery from a De-Synchronised Island means that NGCthe System Operator will decide, having discussed the situation with the relevant Users and taking into account the fact that the three methods may not cover the situation or be appropriate, the approach which is to be followed. NGCThe System Operator will instruct the relevant Users and the Users will comply with NGCthe System Operator's instructions as provided in OC9.5.3.
- OC9.5.5 Where the NGC Transmission System is Out of Synchronism with the transmission system of an Externally Interconnected System Operator, NGC the System Operator will, pursuant to the Interconnection Agreement with that Externally Interconnected System Operator, agree with that Externally Interconnected System Operator when its transmission system can be Re-Synchronised to the NGC Transmission System.

### OC9.6 JOINT SYSTEM INCIDENT PROCEDURE

- OC9.6.1 A "Joint System Incident" is
  - (a) an Event, wherever occurring (other than on an Embedded Small Power Station or Embedded Medium Power Station), which, in the opinion of NGCthe System Operator or a User, has or may have a serious and/or widespread effect.
  - (b) In the case of an Event on a User(s) System(s) (other than on an Embedded Small Power Station or Embedded Medium Power Station), the effect must be on the NGC-Transmission System, and in the case of an Event on the NGC-Transmission System, the effect must be on a User(s) System(s) (other than on an Embedded Small Power Station or Embedded Medium Power Station).

Where an **Event** on a **User(s) System(s)** has or may have no effect on the NGC Transmission System, then such an **Event** does not fall within **OC9** and accordingly **OC9** shall not apply to it.

- Each User (other than Generators which only have Embedded Small Power Stations and/or Embedded Medium Power Stations) will provide in writing to NGC the System Operator, and
  - (ii) NGC The System Operator will provide in writing to each User (other than Generators which only have Embedded Small Power Stations and/or Embedded Medium Power Stations), a telephone number or numbers at which, or through which, senior management representatives nominated for this purpose and who are fully authorised to make binding decisions on behalf of NGC the System Operator or the relevant User, as the case may be, can be contacted day or night when there is a Joint System Incident.

(a)

- (b) The lists of telephone numbers will be provided in accordance with the timing requirements of the Bilateral Agreement and/or Construction Agreement with that User, prior to the time that a User connects to the NGC-Transmission System and must be up-dated (in writing) as often as the information contained in them changes.
- OC9.6.3 Following notification of an **Event** under **OC7**, <u>NGCthe System Operator</u> or a **User**, as the case may be, will, if it considers necessary, telephone the **User** or <u>NGCthe System Operator</u>, as the case may be, on the telephone number **referred** to in OC9.6.2, to obtain such additional information as it requires.
- OC9.6.4 Following notification of an **Event** under **OC7**, and/or the receipt of any additional information requested pursuant to OC9.6.3, <u>NGCthe System Operator</u> or a User, as the case may be, will determine whether or not the **Event** is a **Joint System Incident**, and, if so, <u>NGCthe System Operator</u> and/or the **User** may set up an **Incident Centre** in order to avoid overloading the existing <u>NGCthe System</u> <u>Operator</u> or that **User's**, as the case may be, operational/control arrangements.
- OC9.6.5 Where NGCthe System Operator has determined that an Event is a Joint System Incident, NGCthe System Operator shall, as soon as possible, notify all relevant Users that a Joint System Incident has occurred and, if appropriate, that it has established an Incident Centre and the telephone number(s) of its Incident Centre if different from those already supplied pursuant to OC9.6.2.
- OC9.6.6 If a **User** establishes an **Incident Centre** it shall, as soon as possible, notify <u>NGCthe System Operator</u> that it has been established and the telephone | number(s) of the **Incident Centre** if different from those already supplied pursuant to OC9.6.2.
- OC9.6.7 NGC<u>The System Operator</u>'s Incident Centre and/or the User's Incident Centre will not assume any responsibility for the operation of the NGC-Transmission System or User's System, as the case may be, but will be the focal point in NGC<u>the System Operator</u> or the User, as the case may be, for:-
  - the communication and dissemination of information between <u>NGCthe</u> <u>System Operator</u> and the senior management representatives of User(s); or
  - (b) between the **User** and the senior management representatives of <u>NGCthe</u> <u>System Operator</u>, as the case may be,

relating to the **Joint System Incident**. The term **"Incident Centre"** does not imply a specially built centre for dealing with **Joint System Incidents**, but is a communications focal point. During a **Joint System Incident**, the normal communication channels, for operational/control communication between <u>NGCthe</u> <u>System Operator</u> and **Users** will continue to be used.

- OC9.6.8 All communications between the senior management representatives of the relevant parties with regard to <u>NGCthe System Operator</u>'s role in the Joint System Incident shall be made via <u>NGCthe System Operator</u>'s Incident Centre if it has been established.
- OC9.6.9 All communications between the senior management representatives of <u>NGCthe</u> <u>System Operator</u> and a **User** with regard to that **User's** role in the **Joint System Incident** shall be made via that **User's Incident Centre** if it has been established.

- OC9.6.10 NGC<u>The System Operator</u> will decide when conditions no longer justify the need to use its **Incident Centre** and will inform all relevant **Users** of this decision.
  - OC9.6.11 Each **User** which has established an **Incident Centre** will decide when conditions no longer justify the need to use that **Incident Centre** and will inform <u>NGCthe</u> <u>System Operator</u> of this decision.

<End of OC9>

### **OPERATING CODE NO.10**

# EVENT INFORMATION SUPPLY

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## **OPERATING CODE NO.10**

## **EVENT INFORMATION SUPPLY**

### OC10.1 INTRODUCTION

- OC10.1.1. **Operating Code No.10** ("OC10") sets out:
- OC10.1.1.1 the requirements for the reporting in writing and, where appropriate, more fully, those **Significant Incidents** which were initially reported to <u>NGCthe System</u> <u>Operator</u> or a **User** orally under **OC7**; and
- OC10.1.1.2 the mechanism for the joint investigation of a **Significant Incident** or a series of **Significant Incidents** if <del>NGC<u>the</u> **System Operator** and the relevant **Users** | agree.</del>

## OC10.2 OBJECTIVE

The objective of **OC10** is to facilitate the provision of more detailed information, in writing, of **Significant Incidents** which were initially orally reported under **OC7** and to enable joint investigations to take place if <u>NGCthe System</u> <u>Operator</u> and the relevant **Users** agree.

- OC10.3 <u>SCOPE</u>
- OC10.3.1 OC10 applies to NGCthe System Operator and to Users, which in OC10 means:-
  - (a) Generators (other than those which only have Embedded Small Power Stations and/or Embedded Medium Power Stations);
  - (b) **Network Operators**; and
  - (c) Non-Embedded Customers.

The procedure for **Event** information supply between <u>NGCthe System</u> <u>Operator</u> and **Externally Interconnected System Operators** is set out in the **Interconnection Agreement** with each **Externally Interconnected System Operator**.

- OC10.4 <u>PROCEDURE</u>
- OC10.4.1 <u>REPORTING</u>
- OC10.4.1.1 <u>Written Reporting of Events by Users to NGCthe System Operator</u> In the case of an Event which was initially reported by a User to NGCthe <u>System Operator</u> orally and subsequently determined by NGCthe <u>System</u> <u>Operator</u> to be a <u>Significant Incident</u>, and accordingly notified by <u>NGCthe</u> <u>System Operator</u> to a User pursuant to OC7, the User will give a written report to NGCthe <u>System Operator</u>, in accordance with OC10. NGCThe

System Operator will not pass on this report to other affected Users but may

use the information contained therein in preparing a report under OC10 to another User (or in a report which NGCthe System Operator is required to submit under an Interconnection Agreement) in relation to a Significant Incident (or its equivalent under an Interconnection Agreement or STC) on the NGC Transmission System which has been caused by (or exacerbated by) the Significant Incident on the User's System.

## OC10.4.1.2 Written Reporting of Events by NGCthe System Operator to Users

In the case of an **Event** which was initially reported by NGC<u>the System</u> Operator to a User orally and subsequently determined by the User to be a Significant Incident, and accordingly notified by the User to NGC<u>the System</u> Operator pursuant to OC7, NGC<u>the System Operator</u> will give a written report to the User, in accordance with OC10. The User will not pass on the report to other affected Users but:

- (a) a Network Operator may use the information contained therein in preparing a written report to a Generator with a Generating Unit connected to its System or to another operator of a User System connected to its System in connection with reporting the equivalent of a Significant Incident under the Distribution Code (or other contract pursuant to which that Generating Unit or User System is connected to its System) (if the Significant Incident on the NGC-Transmission System caused or exacerbated it); and
- (b) a Generator may use the information contained therein in preparing a written report to another Generator with a Generating Unit connected to its System or to the operator of a User System connected to its System if it is required (by a contract pursuant to which that Generating Unit or that is connected to its System) to do so in connection with the equivalent of a Significant Incident on its System (if the Significant Incident on the NGC Transmission System caused or exacerbated it).

## OC10.4.1.3 Form

A report under OC10.4.1 shall be sent to NGCthe System Operator or to a User, as the case may be, and will contain a confirmation of the oral notification given under OC7 together with more details relating to the Significant Incident although it (and any response to any question asked) need not state the cause of the Event save to the extent permitted under OC7.4.6.7 and OC7.4.6.9, and such further information which has become known relating to the Significant Incident Incident since the oral notification under OC7. The report should, as a minimum, contain those matters specified in the Appendix to OC10. The Appendix is not intended to be exhaustive. NGCThe System Operator or the User, as the case may be, may raise questions to clarify the notification and the giver of the notification will, in so far as it is able, answer any questions raised.

## OC10.4.1.4 Timing

A full written report under OC10.4.1 must, if possible, be received by <u>NGCthe</u> <u>System Operator</u> or the **User**, as the case may be, within 2 hours of <u>NGCthe</u> <u>System Operator</u> or the **User**, as the case may be, receiving oral notification under **OC7**. If this is not possible, the **User** or <u>NGCthe</u> <u>System Operator</u>, as the case may be, shall, within this period, submit a preliminary report setting out, as a minimum, those matters specified in the Appendix to **OC10**. As soon as reasonably practical thereafter, the **User** or <u>NGCthe System Operator</u>, as | the case may be, shall submit a full written report containing the information set out in OC10.4.1.3.

### OC10.4.2 Joint Investigations

- OC10.4.2.1 Where a **Significant Incident** (or series of **Significant Incidents**) has been declared and a report (or reports) under **OC10** submitted, <u>NGCthe System</u> <u>Operator</u> or a **User** which has either given or received a written report under **OC10** may request that a joint investigation of a **Significant Incident** should take place.
- OC10.4.2.2 Where there has been a series of **Significant Incidents** (that is to say, where a **Significant Incident** has caused or exacerbated another **Significant Incident**) the party requesting a joint investigation or the recipient of such a request, may request that the joint investigation should include an investigation into that other **Significant Incident** (or **Significant Incidents**).
- OC10.4.2.3 NGC<u>The System Operator</u> or a User may also request that:-
  - (i) an Externally Interconnected System Operator and/or
  - (ii) Interconnector User or
  - (iii) (in the case of a Network Operator) a Generator with a Generating Unit connected to its System or another User System connected to its System or
  - (iv) (in the case of a **Generator**) another **Generator** with a **Generating Unit** connected to its **System** or a **User System** connected to its **System**.

be included in the joint investigation.

- OC10.4.2.4 A joint investigation will only take place if NGC<u>the System Operator</u> and the User or Users involved agree to it (including agreement on the involvement of other parties referred to in OC10.4.2.3). The form and rules of, the procedure for, and all matters (including, if thought appropriate, provisions for costs and for a party to withdraw from the joint investigation once it has begun) relating to the joint investigation will be agreed at the time of a joint investigation and in the absence of agreement the joint investigation will not take place.
- OC10.4.2.5 Requests relating to a proposed joint investigation will be in writing.
- OC10.4.2.6 Any joint investigation under **OC10** is separate to any investigation under the **Disputes Resolution Procedure**.

## <u>APPENDIX</u>

## MATTERS, IF APPLICABLE TO THE SIGNIFICANT INCIDENT

# AND TO THE RELEVANT USER (OR NGCTHE SYSTEM OPERATOR, AS THE CASE MAY BE,)

## TO BE INCLUDED IN A WRITTEN REPORT

## GIVEN IN ACCORDANCE WITH OC10.4.1 AND OC10.4.2

- 1. Time and date of **Significant Incident**.
- 2. Location.
- 3. **Plant** and/or **Apparatus** directly involved (and not merely affected by the **Event**).
- 4. Description of **Significant Incident**.

5. **Demand** (in MW) and/or generation (in MW) interrupted and duration of interruption.

- 6. **Generating Unit Frequency** response (MW correction achieved subsequent to the **Significant Incident**).
- 7. **Generating Unit** Mvar performance (change in output subsequent to the **Significant Incident**).
- 8. Estimated time and date of return to service.

< End of OC10>

## **OPERATING CODE NO.12**

## SYSTEM TESTS

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## **OPERATING CODE NO.12**

## SYSTEM TESTS

- OC12.1 INTRODUCTION
- OC12.1.1 **Operating Code No.12** ("OC12") relates to **System Tests**, which are 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.
- OC12.1.2 OC12 deals with the responsibilities and procedures for arranging and carrying out System Tests which have (or may have) an effect on the Systems of NGC the System Operator and Users and/or on the System of any Externally Interconnected System Operator. Where a System Test proposed by a User will have no effect on the NGC Transmission System, then such a System Test does not fall within OC12 and accordingly OC12 shall not apply to it. A System Test proposed by NGC the System Operator which will have an effect on the System of a User will always fall within OC12.
- OC12.2 OBJECTIVE

The overall objectives of OC12 are:

- OC12.2.1 to ensure, so far as possible, that **System Tests** proposed to be carried out either by:
  - (a) a **User** which may have an effect on the **Total System** or any part of the **Total System** (in addition to that **User's System**) including the **NGC-Transmission System**; or
  - (b) by <u>NGCthe System Operator</u> which may have an effect on the Total System or any part of the Total System (in addition to the <u>NGC</u> Transmission System)

do not threaten the safety of either their personnel or the general public, cause minimum threat to the security of supplies and to the integrity of **Plant** and/or **Apparatus**, and cause minimum detriment to <u>NGCthe System Operator</u> and **Users**;

- OC12.2.2 to set out the procedures to be followed for establishing and reporting **System Tests**.
- OC12.3 <u>SCOPE</u>

OC12 applies to NGC the System Operator and to Users, which in OC12 means:-

- (a) **Generators**;
- (b) **Network Operators**; and
- (c) Non-Embedded Customers.

The procedure for the establishment of **System Tests** on the NGC **Transmission System**, with **Externally Interconnected System Operators** which do not affect any **User**, is set out in the **Interconnection Agreement** with each **Externally Interconnected System Operator**. The position of **Externally Interconnected System Operators** and **Interconnector Users** is also referred to in OC12.4.2.

OC12.4 PROCEDURE

### OC12.4.1 **Proposal Notice**

- OC12.4.1.1 Where a **User** has decided that it would like to undertake a **System Test** it shall submit a notice (a "**Proposal Notice**") to <del>NGCthe System Operator</del> at least twelve months in advance of the date it would like to undertake the proposed **System Test**.
- OC12.4.1.2 The **Proposal Notice** shall be in writing and shall contain details of the nature and purpose of the proposed **System Test** and shall indicate the extent and situation of the **Plant** and/or **Apparatus** involved.
- OC12.4.1.3 If NGCthe System Operator is of the view that the information set out in the Proposal Notice is insufficient, it will contact the person who submitted the Proposal Notice (the "Test Proposer") as soon as reasonably practicable, with a written request for further information. NGCThe System Operator will not be required to do anything under OC12 until it is satisfied with the details supplied in the Proposal Notice or pursuant to a request for further information.
- OC12.4.1.4 If <u>NGCthe System Operator</u> wishes to undertake a System Test, <u>NGCthe</u> <u>System Operator</u> shall be deemed to have received a **Proposal Notice** on that System Test.
- OC12.4.1.5 Where, under OC12, NGC<u>the System Operator</u> is obliged to notify or contact the Test Proposer, NGC<u>the System Operator</u> will not be so obliged where it is NGC<u>the System Operator</u> that has proposed the System Test. Users and the Test Panel, where they are obliged under OC12 to notify, send reports to or otherwise contact both NGC<u>the System Operator</u> and the Test Proposer, need only do so once where NGC<u>the System Operator</u> is the proposer of the System Test.

#### OC12.4.2 Preliminary Notice and establishment of Test Panel

OC12.4.2.1 Using the information supplied to it under OC12.4.1 NGCthe System Operator will determine, in its reasonable estimation, which Users, other than the Test Proposer, may be affected by the proposed System Test. If NGCthe System Operator determines, in its reasonable estimation, that an Externally Interconnected System Operator and/or Interconnector User (or Externally Interconnected System Operators and/or Interconnector Users) may be affected by the proposed System Test, then (provided that the Externally Interconnected System Operator and/or Interconnector User (or each Externally Interconnected System Operator and/or Interconnector User where there is more than one affected) undertakes to all the parties to the Grid Code to be bound by the provisions of the Grid Code for the purposes of the System Test) for the purposes of the remaining provisions of this OC12, that Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnected System Operator and/or Interconnector User (or each of those Externally Interconnecte Interconnector Users) will be deemed to be a User and references to the Total System or to the Plant and/or Apparatus of a User will be deemed to include a reference to the transmission or distribution system and plant and/or apparatus of that Externally Interconnected System Operator and/or Interconnector User or (as the case may be) those Externally Interconnected System Operators and/or Interconnector Users. In the event that the Externally Interconnected System Operator and/or Interconnector User (or any of the Externally Interconnected System Operators and/or Interconnected System Operator and/or Interconnector User (or any of the Externally Interconnected System Operators and/or Interconnector Users where there is more than one affected) refuses to so undertake, then the System Test will not take place.

- OC12.4.2.2 NGC<u>The System Operator</u> will appoint a person to co-ordinate the System | Test (a "Test Co-ordinator") as soon as reasonably practicable after it has, or is deemed to have, received a **Proposal Notice** and in any event prior to the distribution of the **Preliminary Notice** referred to below. The **Test Co**ordinator shall act as Chairman of the **Test Panel** and shall be an ex-officio member of the **Test Panel**.
  - (a) Where NGC the System Operator decides, in its reasonable opinion, that the NGC Transmission System will or may be significantly affected by the proposed System Test, then the Test Co-ordinator will be a suitably qualified person nominated by NGC the System Operator after consultation with the Test Proposer and the Users identified under OC12.4.2.1.
  - (b) Where NGC the System Operator decides, in its reasonable opinion, that the NGC Transmission System will not be significantly affected by the proposed System Test, then the Test Co-ordinator will be a suitably qualified person nominated by the Test Proposer after consultation with NGC the System Operator.
  - (c) NGCThe System Operator will, as soon as reasonably practicable after it has received, or is deemed to have received, a Proposal Notice, contact the Test Proposer where the Test Co-ordinator is to be a person nominated by the Test Proposer and invite it to nominate a person as Test Co-ordinator. If the Test Proposer is unable or unwilling to nominate a person within seven days of being contacted by NGCthe System Operator then the proposed System Test will not take place.
- OC12.4.2.3 NGC<u>The System Operator</u> will notify all Users identified by it under OC12.4.2.1 of the proposed System Test by a notice in writing (a "Preliminary Notice") and will send a Preliminary Notice to the Test Proposer. The Preliminary Notice will contain:
  - (a) the details of the nature and purpose of the proposed System Test, the extent and situation of the Plant and/or Apparatus involved and the identity of the Users identified by <u>NGCthe System Operator</u> | under OC12.4.2.1 and the identity of the Test Proposer;
  - (b) an invitation to nominate within one month a suitably qualified representative (or representatives, if the **Test Co-ordinator** informs <u>NGCthe System Operator</u> that it is appropriate for a particular User including the **Test Proposer**) to be a member of the **Test Panel** for the proposed **System Test**;

- (c) the name of the <u>NGCthe System Operator</u> representative (or representatives) on the **Test Panel** for the proposed **System Test**; and
- (d) the name of the **Test Co-ordinator** and whether he was nominated by the **Test Proposer** or by <u>NGCthe **System Operator**</u>.
- OC12.4.2.4 The **Preliminary Notice** will be sent within one month of the later of either the receipt by NGC<u>the System Operator</u> of the **Proposal Notice**, or of the receipt of any further information requested by NGC<u>the System Operator</u> under OC12.4.1.3. Where NGC<u>the System Operator</u> is the proposer of the **System Test**, the **Preliminary Notice** will be sent within one month of the proposed **System Test** being formulated.
- OC12.4.2.5 Replies to the invitation in the **Preliminary Notice** to nominate a representative to be a member of the **Test Panel** must be received by **NGCthe System Operator** within one month of the date on which the **Preliminary Notice** was sent to the **User** by **NGCthe System Operator**. Any **User** which has not replied within that period will not be entitled to be represented on the **Test Panel**. If the **Test Proposer** does not reply within that period, the proposed **System Test** will not take place and **NGCthe System Operator** will notify all **Users** identified by it under OC12.4.2.1 accordingly.
- OC12.4.2.6 NGC<u>The System Operator</u> will, as soon as possible after the expiry of that one month period, appoint the nominated persons to the **Test Panel** and notify all **Users** identified by it under OC12.4.2.1 and the **Test Proposer**, of the composition of the **Test Panel**.

## OC12.4.3 Test Panel

- OC12.4.3.1 A meeting of the **Test Panel** will take place as soon as possible after <u>NGCthe</u> <u>System Operator</u> has notified all **Users** identified by it under OC12.4.2.1 and the **Test Proposer** of the composition of the **Test Panel**, and in any event within one month of the appointment of the **Test Panel**.
- OC12.4.3.2 The **Test Panel** shall consider:
  - (a) the details of the nature and purpose of the proposed System Test and other matters set out in the Proposal Notice (together with any further information requested by NGCthe System Operator under OC12.4.1.3);
  - (b) the economic, operational and risk implications of the proposed **System Test**;
  - (c) the possibility of combining the proposed System Test with any other tests and with Plant and/or Apparatus outages which arise pursuant to the Operational Planning requirements of NGC<u>the System</u> Operator and Users; and
  - (d) implications of the proposed **System Test** on the operation of the **Balancing Mechanism**, in so far as it is able to do so.
- OC12.4.3.3 Users identified by <u>NGCthe System Operator</u> under OC12.4.2.1, the Test Proposer and <u>NGCthe System Operator</u> (whether or not they are represented on the Test Panel) shall be obliged to supply that Test Panel, upon written

request, with such details as the **Test Panel** reasonably requires in order to consider the proposed **System Test**.

OC12.4.3.4 The **Test Panel** shall be convened by the **Test Co-ordinator** as often as he deems necessary to conduct its business.

## OC12.4.4 **Proposal Report**

- OC12.4.4.1 Within two months of first meeting the **Test Panel** will submit a report (a **"Proposal Report**"), which will contain:
  - (a) proposals for carrying out the **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 **Proposal Report** may include requirements for indemnities to be given in respect of claims and losses arising from the **System Test**. All **System Test** procedures must comply with all applicable legislation.

- OC12.4.4.2 If the **Test Panel** is unable to agree unanimously on any decision in preparing its **Proposal Report**, the proposed **System Test** will not take place and the **Test Panel** will be dissolved.
- OC12.4.4.3 The **Proposal Report** will be submitted to <u>NGC the System Operator</u>, the **Test Proposer** and to each **User** identified by <u>NGC the System Operator</u> under OC12.4.2.1.
- OC12.4.4.4 Each recipient will respond to the **Test Co-ordinator** with its approval of the **Proposal Report** or its reason for non-approval within fourteen days of receipt of the **Proposal Report**. If any recipient does not respond, the **System Test** will not take place and the **Test Panel** will be dissolved.
- OC12.4.4.5 In the event of non-approval by one or more recipients, the **Test Panel** will meet as soon as practicable in order to determine whether the proposed **System Test** can be modified to meet the objection or objections.
- OC12.4.4.6 If the proposed **System Test** cannot be so modified, the **System Test** will not take place and the **Test Panel** will be dissolved.
- OC12.4.4.7 If the proposed **System Test** can be so modified, the **Test Panel** will, as soon as practicable, and in any event within one month of meeting to discuss the responses to the **Proposal Report**, submit a revised **Proposal Report** and the provisions of OC12.4.4.3 and OC12.4.4.4 will apply to that submission.
- OC12.4.4.8 In the event of non-approval of the revised **Proposal Report** by one or more recipients, the **System Test** will not take place and the **Test Panel** will be dissolved.

#### OC12.4.5 <u>Test Programme</u>

OC12.4.5.1 If the **Proposal Report** (or, as the case may be, the revised **Proposal Report**) is approved by all recipients, the proposed **System Test** can proceed and at

least one month prior to the date of the proposed **System Test**, the **Test Panel** will submit to <u>NGCthe System Operator</u>, the **Test Proposer** and each **User** identified by <u>NGCthe System Operator</u> under OC12.4.2.1, a programme (the "**Test Programme**") stating 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 site safety) and such other matters as the **Test Panel** deems appropriate.

- OC12.4.5.2 The **Test Programme** will, subject to OC12.4.5.3, bind all recipients to act in accordance with the provisions of the **Test Programme** in relation to the proposed **System Test**.
- OC12.4.5.3 Any problems with the proposed **System Test** which arise or are anticipated after the issue of the **Test Programme** and prior to the day of the proposed **System Test**, must be notified to the **Test Co-ordinator** as soon as possible in writing. If the **Test Co-ordinator** decides that these anticipated problems merit an amendment to, or postponement of, the **System Test**, he shall notify the **Test Proposer** (if the **Test Co-ordinator** was not appointed by the **Test Proposer**), NGCthe System Operator and each User identified by NGCthe System Operator under OC12.4.2.1 accordingly.
- OC12.4.5.4 If on the day of the proposed **System Test**, operating conditions on the **Total System** are such that any party involved in the proposed **System Test** wishes to delay or cancel the start or continuance of the **System Test**, they shall immediately inform the **Test Co-ordinator** of this decision and the reasons for it. The **Test Co-ordinator** shall then postpone or cancel, as the case may be, the **System Test** and shall, if possible, agree with the **Test Proposer** (if the **Test Co-ordinator** was not appointed by the **Test Proposer**), NGCthe **System** <u>Operator</u> and all **Users** identified by NGCthe **System Operator** under OC12.4.2.1 another suitable time and date. If he cannot reach such agreement, the **Test Co-ordinator** shall reconvene the **Test Panel** as soon as practicable, which will endeavour to arrange another suitable time and date for the **System Test**, in which case the relevant provisions of **OC12** shall apply.

## OC12.4.6 Final Report

- OC12.4.6.1 At the conclusion of the **System Test**, the **Test Proposer** shall be responsible for preparing a written report on the **System Test** (the "**Final Report**") for submission to <del>NGCthe **System Operator**</del> and other members of the **Test Panel**. The **Final Report** shall be submitted within three months of the conclusion of the **System Test** unless a different period has been agreed by the **Test Panel** prior to the **System Test** taking place.
- OC12.4.6.2 The **Final Report** shall not be submitted to any person who is not a member of the **Test Panel** unless the **Test Panel**, having considered the confidentiality issues arising, shall have unanimously approved such submission.
- OC12.4.6.3 The **Final Report** shall include a description of the **Plant** and/or **Apparatus** tested and a description of the **System Test** carried out, together with the results, conclusions and recommendations.
- OC12.4.6.4 When the **Final Report** has been prepared and submitted in accordance with OC12.4.6.1, the **Test Panel** will be dissolved.
- OC12.4.7 <u>Timetable Reduction</u>

OC12.4.7.1 In certain cases a **System Test** may be needed on giving less than twelve months notice. In that case, after consultation with the **Test Proposer** and **User(s)** identified by <u>NGCthe System Operator</u> under OC12.4.2.1, <u>NGCthe System Operator</u> under OC12.4.2.1, <u>NGCthe System Operator</u> shall draw up a timetable for the proposed **System Test** and the procedure set out in OC12.4.2 to OC12.4.6 shall be followed in accordance with that timetable.

< End of OC12 >