

Our Ref:

Your Ref:

Date: October 2004

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Dear Sir/Madam

## THE SERVICED GRID CODE – ISSUE 2 REVISION 2

Revision 2 of Issue 3 of the Grid Code has recently been approved by the Authority for implementation on **11<sup>th</sup> October 2004**.

I have enclosed the replacement pages that incorporate the agreed changes necessary to update the serviced copies of the Grid Code Issue 3 held by you to Revision 2 standard.

The enclosed note indicates the changes that are necessary to incorporate the pages and also attached is a brief summary of the changes made to the text.

Yours faithfully



D Payne  
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No 2366977



**THE GRID CODE – ISSUE 3 REVISION 2**

**INCLUSION OF REVISED PAGES**

Title Page

Glossary and Definitions                      **GD**   -   **Pages 7/8 and 23/24**

Operating Code                                **OC1**   -   **Page 5**

**OC2**   -   **Pages 1 to 10, 19/20**

Revisions    **Page 1/2**

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

## NATIONAL GRID COMPANY plc

### THE GRID CODE – ISSUE 3 REVISION 2

#### SUMMARY OF CHANGES

The changes arise from the implementation of modifications proposed in Consultation Paper **A/04** (Changes to the 'Data Validation, Consistency & Defaulting Rules' and associated definition in the Grid Code) and **G/04** (OC1 and OC2 changes).

#### A/04

1. The Data Validation, Consistency and Defaulting Rules (the Rules) definition in the Glossary and Definitions has been updated to reflect that the Rules will now be at Issue 7.
2. The Rules themselves have been updated to reflect that the value that Physical Notifications are validated against change from Generation Capacity, GC, (a BSC term) to Connection Entry Capacity, CEC, or a pseudo CEC (as agreed with the relevant User)

#### G/04

3. Glossary and Definitions. The term 'breakdown' has been removed from the definition of Output Usable. This ensures that data received by National Grid in various timescales is consistent. In order to allow Users to accommodate other factors such as seasonal temperature variations in their estimates, the phrase 'which is expected to be available' has been added after Registered Capacity in the definition.
4. OC1. Demand taken by Station Transformers has been included in the list of factors taken into account given in OC1.6.
5. OC2. The term 'neutral' has been removed in several places. This ensures that a Generators 'best estimate' of data is no longer based on a statistical approach.
6. OC2. References to 'breakdown' have been removed so that no breakdown allowance is made from the 2nd week ahead to 52nd week ahead. This provides consistency with Output Usable submissions.

# **THE GRID CODE**

**Issue 3**

**Revision 2.  
11<sup>th</sup> October 2004**

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### Control Point

The point from which:-

- a) A **Non-Embedded Customer's Plant** and **Apparatus** is controlled; or
- b) A **BM Unit** at a **Large Power Station** or at a **Medium Power Station** or with a **Demand Capacity** with a magnitude of 50MW or more (in England and Wales) or 5MW or more (in Scotland), is physically controlled by a **BM Participant**; or
- c) In the case of any other **BM Unit**, data submission is co-ordinated for a **BM Participant** and instructions are received from **NGC**,

as the case may be. For a **Generator** this will normally be at a **Power Station**. In the case of a **BM Unit** of an **Interconnector User**, the **Control Point** will be the **Control Centre** of the relevant **Externally Interconnected System Operator**.

### Control Telephony

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

### CUSC

Has the meaning set out in **NGC's Transmission Licence**

### CUSC Contract

One or more of the following agreements as envisaged in Standard Condition C1 of **NGC's Transmission Licence**:

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

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

### CUSC Framework Agreement

Has the meaning set out in **NGC's Transmission Licence**

### Customer

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

### Customer Demand Management

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

### Customer Demand Management Notification Level

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

### Customer Generating Plant

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

**Data Registration Code or DRC**

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

**Data Validation, Consistency and Defaulting Rules**

The rules relating to validity and consistency of data, and default data to be applied, in relation to data submitted under the **Balancing Codes**, to be applied by **NGC** under the **Grid Code** as set out in the document "Data Validation, Consistency and Defaulting Rules" - Issue 7, dated 11<sup>th</sup> October 2004. The document is available on the National Grid website or upon request from **NGC**.

**De-Load**

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

**Demand**

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

**Demand Capacity**

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

**Demand Control**

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

- (a) **Customer** voltage reduction initiated by **Network Operators** (other than following an instruction from **NGC**);
- (b) **Customer Demand** reduction by **Disconnection** initiated by **Network Operators** (other than following an instruction from **NGC**);
- (c) **Demand** reduction instructed by **NGC**;
- (d) automatic low **Frequency Demand Disconnection**;
- (e) emergency manual **Demand Disconnection**.

**Demand Control Notification Level**

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

**Designed Minimum Operating Level**

The output (in whole MW) below which a **Genset** has no **High Frequency Response** capability.

**De-Synchronise**

- a) The act of taking a **Generating Unit** off a **System** to which it has been **Synchronised**, by opening any connecting circuit breaker; or
  - b) The act of ceasing to consume electricity at an importing **BM Unit**;
- and the term "**De-Synchronising**" shall be construed accordingly.

**De-synchronised Island(s)**

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



<b><u>Operational Intertripping</u></b>	The automatic tripping of circuit-breakers to prevent abnormal system conditions occurring, such as over voltage, overload, <b>System</b> instability, etc. after the tripping of other circuit-breakers following power <b>System</b> fault(s) which includes <b>System</b> to <b>Generating Unit</b> , <b>System</b> to <b>CCGT Module</b> and <b>System</b> to <b>Demand</b> intertripping schemes.
<b><u>Operational Planning</u></b>	Planning through various timescales the matching of generation output with forecast <b>GB Transmission System Demand</b> together with a reserve of generation to provide a margin, taking into account outages of certain <b>Generating Units</b> , of parts of the <b>GB Transmission System</b> and of parts of <b>User Systems</b> to which <b>Power Stations</b> and/or <b>Customers</b> are connected, carried out to achieve, so far as possible, the standards of security set out in <b>NGC's Transmission Licence</b> , each <b>Relevant Transmission Licensee's Transmission Licence</b> or <b>Electricity Distribution Licence</b> , as the case may be.
<b><u>Operational Planning Margin</u></b>	An operational planning margin set by <b>NGC</b> .
<b><u>Operational Planning Phase</u></b>	The period from 8 weeks to the end of the 5 <sup>th</sup> year ahead of real time operation.
<b><u>Operational Procedures</u></b>	Management instructions and procedures, both in support of the <b>Safety Rules</b> and for the local and remote operation of <b>Plant</b> and <b>Apparatus</b> , issued in connection with the actual operation of <b>Plant</b> and/or <b>Apparatus</b> at or from a <b>Connection Site</b> .
<b><u>Operational Switching</u></b>	Operation of <b>Plant</b> and/or <b>Apparatus</b> to the instruction of the relevant <b>NGC Control Engineer</b> and <b>User Responsible Engineer/Operator</b> .
<b><u>Other Relevant Data</u></b>	The data listed in BC1.4.2(f) under the heading <b>Other Relevant Data</b>
<b><u>Out of Synchronism</u></b>	The condition where a <b>System</b> or <b>Generating Unit</b> cannot meet the requirements to enable it to be <b>Synchronised</b> .
<b><u>Output Usable or OU</u></b>	That portion of <b>Registered Capacity</b> which is expected to be available and which is not unavailable due to a <b>Planned Outage</b> .
<b><u>Over-excitation Limiter</u></b>	Shall have the meaning ascribed to that term in <b>IEC 34-16-1:1991</b> [equivalent to <b>British Standard BS4999</b> Section 116.1 : 1992].
<b><u>Part 1 System Ancillary Services</u></b>	<b>Ancillary Services</b> which are required for <b>System</b> reasons and which must be provided by <b>Users</b> in accordance with the <b>Connection Conditions</b> . An exhaustive list of <b>Part 1 System Ancillary Services</b> is included in that part of CC.8.1 headed Part 1.

**Part 2 System Ancillary Services**

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

**Part Load**

The condition of a **Genset** which is **Loaded** but is not running at its Maximum Export Limit.

**Permit for Work for proximity work**

In England and Wales, a document issued by **NGC** or a **User** in accordance with its respective **Safety Rules** to enable work to be carried out in accordance with OC8A.8 and which provides for **Safety Precautions** to be applied and maintained. An example format of **NGC's** permit for work is attached as Appendix E to **OC8A**.

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

**Partial Shutdown**

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

**Phase (Voltage) Unbalance**

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

**Physical Notification**

Data that describes the **BM Participant's** best estimate of the expected input or output of **Active Power** of a **BM Unit**.

**Planning Code or PC**

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

**Planned Maintenance Outage**

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

**Planned Outage**

An outage of a **Large Power Station** or of part of the **GB Transmission System**, or of part of a **User System**, co-ordinated by **NGC** under **OC2**.

**Grid Supply Point**) on a half hourly and **Grid Supply Point** basis during the previous calendar day.

OC1.6 **NGC FORECASTS**

OC1.6.1 The following factors will be taken into account by **NGC** when conducting **GB Transmission System Demand** forecasting in the **Programming Phase** and **Control Phase**:

- (a) Historic **Demand** data (this includes **GB 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 **NGC** in advance.
- (d) Anticipated interconnection flows across **External Interconnections**.
- (e) **Demand Control** equal to or greater than the **Demand Control Notification Level** (averaged over any half hour at any **Grid Supply Point**) proposed to be exercised by **Network Operators** and of which **NGC** has been informed.
- (f) **Customer Demand Management** equal to or greater than the **Customer Demand Management Notification Level** (averaged over any half hour at any **Grid Supply point**) proposed to be exercised by **Suppliers** and of which **NGC** 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 **NGC** in accordance with the provisions of **BC1** and **BC2**.
- (k) **Demand** taken by **Station Transformers**

OC1.6.2 Taking into account the factors specified in OC1.6.1 **NGC** uses **Demand** forecast methodology to produce forecasts of **GB Transmission System Demand**. A written record of the use of the methodology must be kept by **NGC** 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 **GB National Demand**. **GB Transmission System 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 **NGC**, and it will base its **GB Transmission System Demand** forecasts on those factors only.

< End of OC1 >



## 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 **GB Transmission System** and **Network Operators' Systems** for construction, repair and maintenance;
- (b) provision by **NGC** of the **Surpluses** both for the **GB Transmission System** and **System Zones**;
- (c) the provision by **Generators** of **Generation Planning Parameters** for **Gensets**, including **CCGT Module Planning Matrices**, to **NGC** 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 **GB Transmission System Demand** together with a reserve of generation to provide a margin, taking into account outages of certain **Generating Units**, and of parts of the **GB 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 **NGC's Transmission Licence**, each **Relevant Transmission Licensee's Transmission Licence** or **Electricity Distribution Licence** as the case may be.

- (b) In general terms there is an "envelope of opportunity" for the release of **Gensets** and for the release of parts of the **GB 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.

OC2.1.5      References to **NGC** planning the **GB Transmission System** outage programme on the basis of the **Final Generation Outage Programme**, are to **NGC** 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 **NGC**, 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 **NGC** shall, in its reasonable discretion, determine. However, **NGC** 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**.

OC2.1.8 In Scotland, it may be possible with the agreement of **NGC** to reduce the administrative burden for **Users** in producing planning information where either the output or demand is small.

## OC2.2 OBJECTIVE

OC2.2.1 (a) The objective of **OC2** is to seek to enable **NGC** to harmonise outages of **Gensets** in order that such outages are co-ordinated (taking account of **Medium Power Stations**) between **Generators** and **Network Operators**, and that such outages are co-ordinated taking into account **GB Transmission System** outages and other **System** outages, so far as possible to minimise the number and effect of constraints on the **GB Transmission System** or any other **System**.

(b) In the case of **Network Operator' User Systems** directly connected to the **GB Transmission System** this means in particular that there will also need to be harmonisation of outages of **Embedded Gensets**, and **GB 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 **NGC** of the **Surpluses** both for the **GB 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 **NGC** 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 **NGC** 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 **NGC** will review the boundaries if, in **NGC's** reasonable opinion, such a review is justified.

## OC2.3 SCOPE

- OC2.3.1 **OC2** applies to **NGC** 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 Co-ordination of Outages

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

- (a) Each **Generator** and **NGC** In respect of outages of **Gensets** and in respect of outages of other **Plant** and/or **Apparatus** directly connected to the **GB Transmission System**;
- (b) **NGC** and each **Generator** in respect of **GB Transmission System** outages relevant to each **Generator** (other than in respect of **Embedded Small Power Stations** or **Embedded Medium Power Stations**);
- (c) **NGC** 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** and each **Network Operator** and each **Non-Embedded Customer** in respect of **GB Transmission System** outages relevant to the particular **Network Operator** or **Non-Embedded Customers**;
- (e) Each **Network Operator** and each **Non-Embedded Customer** and **NGC** in respect of **User System** outages relevant to **NGC**.

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) By the end of week 2

Each **Generator** will provide **NGC** in writing with:

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

**NGC** 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 **NGC** (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** may, as appropriate, contact each **Generator** who has supplied information to seek clarification on points.

- (c) By the end of week 12

**NGC** will:

- (i) having taken into account the information notified to it by **Generators** and taking into account:-
  - (1) **GB Transmission System** constraints and outages,
  - (2) **Network Operator System** constraints and outages, known to **NGC**, 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 **NGC** believes necessary, and will advise **Generators** with **Large Power Stations** of the **Surpluses** both for the **GB 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 **NGC**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGC** 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 **NGC** to explain its concerns and **NGC** 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 **NGC** 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 **NGC**. 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 **NGC** in writing with an updated provisional **Genset** outage programme covering both **Embedded** and non-**Embedded Large Power Stations** together with the best estimate weekly **Output Usable** forecasts for each **Genset**, in all cases for Year 3 to Year 5 (inclusive). The updated provisional **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** will be considering the updated provisional **Genset** outage programme, together with the best estimate 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

**NGC** will:

- (i) provide each **Generator** in writing with details of any suggested revisions considered by **NGC** as being necessary to the updated provisional **Genset** outage programme supplied to **NGC** under (e) and will advise **Generators** with **Large Power Stations** of the **Surpluses** for the **GB Transmission System** and **System Zones** and potential export limitations on a weekly basis which would occur without such revisions; and
- (ii) provide each **Network Operator** in writing with the update of potential outages of **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 **NGC** to explain its concerns and the provisions set out in (d) above will apply to that process.

(i) By the end of week 42

**NGC** will:

- (1) provide each **Generator** in writing with details of suggested revisions considered by **NGC** as being necessary to the updated provisional **Genset** outage programme supplied to **NGC** and will advise **Generators** with **Large Power Stations** of the **Surpluses** for the **GB 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 **NGC**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGC** 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** will seek to agree a **Final Generation Outage Programme** for Year 3 to Year 5. If agreement cannot be reached on all aspects, **NGC** and each **Generator** will record their agreement on as many aspects as have been agreed and **NGC** will advise each **Generator** with **Large Power Stations** and each **Network Operator**, of the **Surpluses** for the **GB 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 **NGC** to abide by it, but **NGC** will be planning the **GB 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 **GB Transmission**

**System** outage programme, **NGC** need not alter the **GB 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) **By the end of week 10**

Each **Generator** will provide **NGC** in writing with its previously agreed **Final Generation Outage Programme** updated and best estimate 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** 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 **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(c) **By the end of week 12**

**NGC** 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 **GB 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 **NGC**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGC** 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 **NGC** in writing with revised best estimate **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

**NGC** 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 **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

- (g) By the end of week 39

**NGC** 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 **GB 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 **NGC**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGC** 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** 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** and each **Generator** will record their agreement on as many aspects as have been agreed and **NGC** 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** to abide by it, but **NGC** will be planning the **GB 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 **GB Transmission System** outage programme, **NGC** need not alter the **GB 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) By 1600 hours each Wednesday

Each **Generator** will provide **NGC** in writing with an update of the **Final Generation Outage Programme** and a best estimate **Output Usable** forecast for each of its **Gensets** from the 2nd week ahead to the 52nd week ahead.

(b) Between 1600 hours Wednesday and 1700 hours Friday

**NGC** 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 **GB Transmission System** constraints and outages and **Network Operator System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(c) On Friday (by 1700 hours)

**NGC** will:

- (i) 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 **GB 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 **NGC**, affect the integrity of that **Network Operator's User System** and in such

circumstances, **NGC** 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) By 1200 hours each Friday

**NGC** 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 **NGC** in writing (or by such electronic data transmission facilities as have been agreed with **NGC**) 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 **NGC** 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** 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 **GB Transmission System** constraints and outages and **Network Operator System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(d) By 1600 hours each Business Day

- (i) **NGC** will notify in writing (or by such electronic data transmission facilities as have been agreed with **NGC**) each **Generator** with **Large Power Stations** and each **Network Operator**, of the **Surpluses** both for the **GB 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** by 1100 hours and if a suitable electronic data transmission facility is in place between **NGC** 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, **NGC** reserve the right to extend the timescale for issue of the information

- (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** 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 **NGC** 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 **NGC** 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 **NGC** 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 **NGC** 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 **NGC** 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 **NGC** in accordance with this OC2.4.2.1(b).

The **CCGT Module Planning Matrix** will be used by **NGC** 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 **NGC** 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** will, taking into account the **Final Generation Outage Programme** and forecast of **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
- (b) all **Generators** with **Large Power Stations** which may, in **NGC'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. **NGC** and each **Generator** will take these into account in seeking to co-ordinate outages for that period.

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

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

(b) By 1600 hours each **Wednesday**

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

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

(i) If **NGC**, 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



## **REVISIONS**

(This section does not form part of the Grid Code)

NGC's Transmission Licence sets out the way in which changes to the Grid Code are to be made and reference is also made to NGC's obligations under the General Conditions.

In order to ensure that Users have access to a current version of the Grid Code, Users who have purchased a serviced copy of the Grid Code receive a set of replacement pages containing the revisions made to the Grid Code pursuant to the Transmission Licence. Unserviced copies are not so updated but each unserviced copy issued is accompanied by all revisions since the date the unserviced version of the Grid Code was last reprinted.

All pages re-issued have the revision number and date of the revision on the lower right hand corner of the page. The changes to the text since the previous page issue are indicated by a vertical line to the right hand side of the text. Where repagination or repositioning of the text on other pages has been found necessary but the text itself has remained unchanged the re-issued pages have only the revision number and date of the revision included.

The Grid Code was introduced in March 1990 and this first issue was revised 31 times. In March 2001 the New Electricity Trading Arrangements were introduced and Issue 2 of the Grid Code was introduced which was revised 16 times. At British Electricity Trading and Transmission Arrangements (BETTA) Go-Active Issue 3 of the Grid Code was introduced.

The following 'index to revisions' provides a checklist to the pages and sections of the Grid Code changed by each revision to Issue 3 of the Grid Code.

All inquiries in relation to revisions to the Grid Code, including revisions to Issues 1 and 2, should be addressed to the Grid Code development team at the address given at the front of the Grid Code.

<b>CODE</b>	<b>PAGE</b>	<b>CLAUSE</b>
GD	20	Maximum Generation Service definition revised
OC7	12	OC7.4.8.5 (iii) amended to include MGS notification
BC2	12	BC2.9.2.4 amended to include reference to CUSC
BC2	13	BC2.9.3.2 (e) amended to include reference to CUSC and remove reference to MGS

<b>CODE</b>	<b>PAGE</b>	<b>CLAUSE</b>
GD	8	Version number and date of Data Validation, Consistency and Defaulting Rules updated to Issue 7, 11 <sup>th</sup> October 2004.
GD	23	Output Useable definition revised
OC1	5	Item (k) added to OC1.6.1
OC2	1	OC2.1.4 amended
OC2	4	OC2.4.1.2.1 (a) (ii) amended
OC2	5	OC2.4.1.2.1 (e) and (f) amended
OC2	7	OC2.4.1.2.2 (a) amended
OC2	8	OC2.4.1.2.2 (e) amended
OC2	9	OC2.4.1.2.3 (a) amended
OC2	20	Oc2.4.3.1 first paragraph amended
OC2 - Page 10 page break revised		