BALANCING CODE No 1

PRE GATE CLOSURE PROCESS

BC1.1 INTRODUCTION

Balancing Code No1 (BC1) sets out the procedure for:

(a) the submission of **BM Unit Data** and/or **Generating Unit Data** by each **BM Participant**;

(b) the submission of certain **System** data by each **Network Operator**; and

(c) the provision of data by **NGC,**

in the period leading up to **Gate Closure**.

BC1.2 OBJECTIVE

The procedure for the submission of **BM Unit Data** and/or **Generating Unit Data** is intended to enable **NGC** to assess which **BM Units** and **Generating Units** are expected to be operating in order that **NGC** can ensure (so far as possible) the integrity of the **GB Transmission System**, and the security and quality of supply.

Where reference is made in this **BC1** to **Generating Units** (unless otherwise stated) it only applies to:

(a) each **Generating Unit** which forms part of the **BM Unit** of a **Cascade Hydro Scheme**; and

(b) each **Generating Unit** at an **Embedded Exemptable Large Power Station** where the **Bilateral Agreement** specifies that **NGC** reasonably requires compliance with **BC1** on a **Generating Unit** basis.

BC1.3 SCOPE

BC1 applies to **NGC** and to **Users**, which in this **BC1** means:-

(a) **BM Participants;**

(b) **Externally Interconnected System Operators**; and

(c) **Network Operators**.

BC1.4 SUBMISSION OF ~~BM UNIT~~ DATA

In the case of **BM Units** or **Generating Units** **Embedded** in a **User System**, any data submitted by **Users** under this **BC1** must represent the value of the data at the relevant **Grid Supply Point**.

BC1.4.1 Communication with **Users**

(a) Submission of **BM Unit Data** and **Generating Unit Data** by **Users** to **NGC** specified in BC1.4.2 to BC1.4.4 (with the exception of BC1.4.2(f)) is to be by use of electronic data communications facilities, as provided for in CC.6.5.8. However, data specified in BC1.4.2(c) and BC1.4.2(e) only, may be revised by telephone following its initial submission by electronic data communication facilities.

(b) In the event of a failure of the electronic data communication facilities, the data to apply in relation to a pre-**Gate Closure** period will be determined in accordance with the **Data Validation, Consistency and Defaulting Rules**, based on the most recent data received and acknowledged by **NGC**.

(c) **Planned Maintenance Outages** will normally be arranged to take place during periods of low data transfer activity.

(d) Upon any **Planned Maintenance Outage**, or following an unplanned outage described in BC1.4.1(b) (where it is termed a "failure") in relation to a pre-**Gate Closure** period:-

(i) **BM Participants** should continue to act in relation to any period of time in accordance with the **Physical Notifications** current at the time of the start of the **Planned Maintenance Outage** or the computer system failure in relation to each such period of time subject to the provisions of BC2.5.1. Depending on when in relation to **Gate Closure** the planned or unplanned maintenance outage arises such operation will either be operation in preparation for the relevant output in real time, or will be operation in real time. No further submissions of **BM Unit Data** and/or **Generating Unit Data** (other than data specified in BC1.4.2(c) and BC1.4.2(e)) should be attempted. Plant failure or similar problems causing significant deviation from **Physical Notification** should be notified to **NGC** by the submission of a revision to **Export and Import Limits** in relation to the **BM Unit** and/or **Generating Unit** so affected;

(ii) during the outage, revisions to the data specified in BC1.4.2(c) and BC1.4.2(e) may be submitted. Communication between **Users' Control Points** and **NGC** during the outage will be conducted by telephone; and

(iii) no data will be transferred from **NGC** to the **BMRA** until the communication facilities are re-established.

BC1.4.2 Day Ahead Submissions

Data for any **Operational Day** may be submitted to **NGC** up to several days in advance of the day to which it applies, as provided in the **Data Validation, Consistency and Defaulting Rules**. However, **Interconnector Users** must submit **Physical Notifications,** and any associated data as necessary, each day by 11:00 hours in respect of the next following **Operational Day** in order that the information used in relation to the capability of the respective **External Interconnection** is expressly provided. **NGC** shall not by the inclusion of this provision be prevented from utilising the provisions of BC1.4.5 if necessary.

The data may be modified by further data submissions at any time prior to **Gate Closure**, in accordance with the other provisions of **BC1**. The data to be used by **NGC** for operational planning will be determined from the most recent data that has been received by **NGC** by 11:00 hours on the day before the **Operational Day** to which the data applies, or from the data that has been defaulted at 11:00 hours on that day in accordance with BC1.4.5. Any subsequent revisions received by **NGC** under the **Grid Code** will also be utilised by **NGC**. In the case of all data items listed below, with the exception of item (e), **Dynamic Parameters** (Day Ahead), the latest submitted or defaulted data, as modified by any subsequent revisions, will be carried forward into operational timescales. The individual data items are listed below:-

(a) **Physical Notifications**

Physical Notifications, being the data listed in **BC1** Appendix 1 under that heading, are required by **NGC** at 11:00 hours each day for each **Settlement Period** of the next following **Operational Day,** in respect of :

(1) **BM Units**:-

(i) with a **Demand Capacity** with a magnitude of 50MW or more in England and Wales or 5MW or more in Scotland; or

(ii) comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC1.2) and/or **CCGT Modules** at **Large Power Stations** and **Medium Power Stations;** or

(iii) where the **BM Participant** chooses to submit **Bid-Offer Data** in accordance with BC1.4.2(d) for **BM Units** not falling within (i) or (ii) above,

and ~~in respect of~~

(2) each **Generating Unit** ~~which forms part of the **BM Unit** of a **Cascade Hydro Scheme**~~.

Physical Notifications may be submitted to **NGC** by **BM Participants,** for the **BM Units**, and ~~in the case of BC1.4.2(a) for such~~ **Generating Units**, specified in this BC1.4.2(a) at an earlier time, or **BM Participants** may rely upon the provisions of BC1.4.5 to create the **Physical Notifications** by data defaulting pursuant to the **Grid Code** utilising the rules referred to in that paragraph at 11:00 hours in any day.

Physical Notifications (which must comply with the limits on maximum rates of change listed in **BC1** Appendix 1) must, subject to the following operating limits, represent the **User's** best estimate of expected input or output of **Active Power** and shall be prepared in accordance with **Good Industry Practice**. **Physical Notifications** for any **BM Unit**, and ~~in the case of BC1.4.2(a) for such~~any **Generating Units**, should normally be consistent with the **Dynamic Parameters** and **Export and Import Limits** and must not reflect any **BM Unit**~~, and in the case of BC1.4.2(a) for such~~ or any **Generating Units**, proposing to operate outside the limits of its **Demand Capacity** and (and in the case of **BM Units**) **Generation Capacity** and, in the case of a **BM Unit** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) or **CCGT Module**, its **Registered Capacity.**

These **Physical Notifications** provide, amongst other things, indicative **Synchronising** and **De-Synchronising** times to **NGC** in respect of any **BM Unit** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) or **CCGT Module**, and ~~in the case of BC1.4.2(a)~~ for ~~such~~any

Generating Units, and provide an indication of significant **Demand** changes in respect of other **BM Units**.

(b) **Quiescent Physical Notifications**

Each **BM Participant** may, in respect of each of its **BM Units**, submit to **NGC** for each **Settlement Period** of the next following **Operational Day** the data listed in **BC1** Appendix 1 under the heading of "**Quiescent Physical Notifications**" to amend the data already held by **NGC** in relation to **Quiescent Physical Notifications,** which would otherwise apply for those **Settlement Periods**.

(c) **Export and Import Limits**

Each **BM Participant** may, in respect of each of its **BM Units**~~,~~ and ~~for each of the~~ its **Generating Units** ~~forming part of a **BM Unit** for a **Cascade Hydro Scheme**,~~ submit to **NGC** for any part or for the whole of the next following **Operational Day** the data listed in **BC1** Appendix 1 under the heading of "**Export and Import Limits**" to amend the data already held by **NGC** in relation to **Export and Import Limits,** which would otherwise apply for those **Settlement Periods.**

Export and Import Limits respectively represent the maximum export to or import from the **GB Transmission System** for a **BM Unit**~~,~~ and ~~for each of the~~a **Generating Units** ~~forming part of a **BM Unit** for a **Cascade Hydro Scheme**,~~**Unit** and are the maximum levels that the **BM Participant** wishes to make available and must be prepared in accordance with **Good Industry Practice**.

(d) **Bid-Offer Data**

Each **BM Participant** may, in respect of each of its **BM Units**, but must not in respect of ~~each of the~~its **Generating Units** ~~forming part of a **BM Unit** for a **Cascade Hydro Scheme**,~~ submit to **NGC** for any **Settlement Period** of the next following **Operational Day** the data listed in **BC1** Appendix 1 under the heading of "**Bid-Offer Data**" to amend the data already held by **NGC** in relation to **Bid-Offer Data**, which would otherwise apply to those **Settlement Periods**. The submitted **Bid-Offer Data** will be utilised by **NGC** in the preparation and analysis of its operational plans for the next following **Operational Day**. **Bid-Offer Data** may not be submitted unless an automatic logging device has been installed at the **Control Point** for the **BM Unit** in accordance with CC.6.5.8(b).

(e) **Dynamic Parameters** (Day Ahead)

Each **BM Participant** may, in respect of each of its **BM Units**, but must not in respect of ~~each of the~~its **Generating Units** ~~forming part of a **BM Unit** for a **Cascade Hydro Scheme**,~~ submit to **NGC** for the next following **Operational Day** the data listed in **BC1** Appendix 1 under the heading of "**Dynamic Parameters**" to amend that data already held by **NGC.**

These **Dynamic Parameters** shall reasonably reflect the expected true operating characteristics of the **BM Unit** and shall be prepared in accordance with **Good Industry Practice**. In any case where non-zero **QPN** data has been provided in accordance with BC1.4.2(b), the **Dynamic Parameters** will apply to the element being offered for control only, i.e. to the component of the **Physical Notification** between the **QPN** and the full level of the **Physical Notification**.

The **Dynamic Parameters** applicable to the next following **Operational Day** will be utilised by **NGC** in the preparation and analysis of its operational plans for the next following **Operational Day** and may be used to instruct certain **Ancillary Services**. For the avoidance of doubt, the **Dynamic Parameters** to be used in the current **Operational Day** will be those submitted in accordance with BC2.5.3.1.

(f) **Other Relevant Data**

By 11:00 hours each day each **BM Participant,** in respect of each of its **BM Units** ~~for which **Physical Notifications** are being submitted and in respect of each of the~~and **Generating Units** ~~forming part of the **BM Unit** of a **Cascade Hydro Scheme**~~ for which **Physical Notifications** are being submitted shall, if it has not already done so, submit to **NGC** (save in respect of item (vi) where the item shall be submitted only when reasonably required by **NGC**), in respect of the next following **Operational Day** the following:

(i) in the case of a **CCGT Module**, a **CCGT Module Matrix** as described in **BC1** Appendix 1;

(ii) details of any special factors which in the reasonable opinion of the **BM Participant** may have a material effect or present an enhanced risk of a material effect on the likely output (or consumption) of such **BM Unit(s)**. Such factors may include risks, or potential interruptions, to **BM Unit** fuel supplies, or developing plant problems, details of tripping tests, etc. This information will normally only be used to assist in determining the appropriate level of **Operating Margin** that is required under OC2.4.6;

(iii) in the case of **Generators**, any temporary changes, and their possible duration, to the **Registered Data** of such **BM Unit**;

(iv) in the case of **Suppliers**, details of **Customer Demand Management** taken into account in the preparation of its **BM Unit Data**;

(v) details of any other factors which **NGC** may take account of when issuing **Bid-Offer Acceptances** for a **BM Unit** (e.g., **Synchronising** or **De-Synchronising** Intervals, the minimum notice required to cancel a **Synchronisation**, etc); and

(vi) in the case of a **Cascade Hydro Scheme**, the **Cascade Hydro Scheme Matrix** as described in **BC1** Appendix 1.

(g) **Joint BM Unit Data**

BM Participants may submit **Joint BM Unit Data** in accordance with the provisions of the **BSC**. For the purposes of the **Grid Code**, such data shall be treated as data submitted under **BC1**.

BC1.4.3 Data Revisions

The **BM Unit Data**, and **Generating Unit** ~~data in the case of a **Cascade Hydro Scheme**~~**Data**, derived at 1100 hours each day under BC1.4.2 above may need to be revised by the **BM Participant** for a number of reasons, including for example, changes to expected output or input arising from revised contractual positions, plant breakdowns, changes to expected **Synchronising** or **De-Synchronising** times, etc, occurring before **Gate Closure**. **BM Participants** should use reasonable endeavours to ensure that the data held by **NGC** in relation to its **BM Units**~~,~~ and **Generating Units** ~~in the case of a **Cascade Hydro Scheme**~~, is accurate at all times. Revisions to **BM Unit Data**, and **Generating Unit** ~~data in the case of a **Cascade Hydro Scheme**,~~**Data** for any period of time up to **Gate Closure** should be submitted to **NGC** as soon as reasonably practicable after a change becomes apparent to the **BM Participant**. **NGC** will use reasonable endeavours to utilise the most recent data received from **Users,** subject to the application of the provisions of BC1.4.5, for its preparation and analysis of operational plans.

BC1.4.4 Receipt of **BM Unit Data** prior to **Gate Closure**

BM Participants submitting **Bid-Offer Data,** in respect of any **BM Unit** for use in the **Balancing Mechanism** for any particular **Settlement Period** in accordance with the **BSC**, must ensure that **Physical Notifications** and **Bid-Offer Data** for such **BM Units** are received in their entirety and logged into **NGC's** computer systems by the time of **Gate Closure** for that **Settlement Period**. In all cases the data received will be subject to the application under the **Grid Code** of the provisions of BC1.4.5**.**

For the avoidance of doubt, no changes to the **Physical Notification, QPN** data or **Bid-Offer Data** for any **Settlement Period** may be submitted to **NGC** after **Gate Closure** for that **Settlement Period**.

BC1.4.5 **BM Unit Data** Defaulting, Validity and Consistency Checking

In the event that no submission of any or all of the **BM Unit Data** and ~~in the case of a **Cascade Hydro Scheme**, the data in respect of~~ **Generating ~~Units~~** ~~forming part of its **BM**~~ **Unit**~~,~~ **Data** in accordance with BC1.4.2 in respect of an **Operational Day**, is received by **NGC** by 11:00 hours on the day before that **Operational Day**, **NGC** will apply the **Data Validation**, **Consistency and Defaulting Rules**, with the default rules applicable to **Physical Notifications**, **Quiescent Physical Notifications** and **Export and Import Limits** data selected as follows:

(a) for an **Interconnector User's BM Unit**, the defaulting rules will set some or all of the data for that **Operational Day** to zero, unless the relevant Interconnector arrangements, as agreed with **NGC**, state otherwise (in which case (b) applies); and

(b) for all other **BM Units**~~, and in the case of a **Cascade Hydro Scheme** in respect of~~ or **Generating Units** ~~forming part of its **BM Unit**~~, the defaulting rules will set some or all of the data for that **Operational Day** to the values prevailing in the current **Operational Day**.

A subsequent submission by a **User** of a data item which has been so defaulted under the **Grid Code** will operate as an amendment to that defaulted data and thereby replace it. Any such subsequent submission is itself subject to the application under the **Grid Code** of the **Data Validation**, **Consistency and Defaulting Rules.**

BM Unit Data and ~~in the case of a **Cascade Hydro Scheme**, the data in respect of~~ **Generating ~~Units~~** ~~forming part of its **BM**~~ **Unit**~~,~~ **Data** submitted in accordance with the provisions of BC1.4.2 to BC1.4.4 will be checked under the **Grid Code** for validity and consistency in accordance with the **Data Validation, Consistency and Defaulting Rules**. If any **BM Unit Data** and ~~in the case of a **Cascade Hydro Scheme**, the data in respect of~~ **Generating ~~Units~~** ~~forming part of its **BM**~~ **Unit**~~,~~ **Data** so submitted fails the data validity and consistency checking, this will result in the rejection of all data submitted for that **BM Unit** or **Generating Unit** included in the electronic data file containing that data item and that **BM Unit's**~~, and in the case of a **Cascade Hydro Scheme**, the data in respect of~~ or **Generating Units** ~~forming part of its **BM Unit**,~~ data items will be defaulted under the **Grid Code** in accordance with the **Data Validation, Consistency and Defaulting Rules**. Data for other **BM Units**~~, and in the case of a **Cascade Hydro Scheme**, the data in respect of~~ and **Generating Units** ~~forming part of its **BM Unit**,~~ included in the same electronic data file will not be affected by such rejection and will continue to be validated and checked for consistency prior to acceptance. In the event that rejection of any **BM Unit Data**~~, and in the case of a **Cascade Hydro Scheme**, the data in respect of~~ and **Generating ~~Units~~** ~~forming part of its **BM**~~ **Unit**~~,~~ **Data** occurs, details will be made available to the relevant **BM Participant** via the electronic data communication facilities. In the event of a difference between the **BM Unit Data** for the **Cascade**

Hydro Scheme and sum of the data submitted for the **Generating Units** forming part of such **Cascade Hydro Scheme**, **the BM Unit Data** shall take precedence.

BC1.4.6 Special Provisions relating to **Interconnector Users**

(a) The total of the relevant **Physical Notifications** submitted by **Interconnector Users** in respect of any period of time should not exceed the capability (in MW) of the respective **External Interconnection** for that period of time. In the event that it does, then **NGC** shall advise the **Externally Interconnected System Operator** accordingly. In the period between such advice and **Gate Closure**, one or more of the relevant **Interconnector Users** would be expected to submit revised **Physical Notifications** to **NGC** to eliminate any such over-provision.

(b) In any case where, as a result of a reduction in the capability (in MW) of the **External Interconnection** in any period during an **Operational Day** which is agreed between **NGC** and an **Externally Interconnected System Operator** after 0900 hours on the day before the beginning of such **Operational Day**, the total of the **Physical Notifications** in the relevant period using that **External Interconnection**, as stated in the **BM Unit Data** exceeds the reduced capability (in MW) of the respective **External Interconnection** in that period then **NGC** shall notify the **Externally Interconnected System Operator** accordingly.

BC1.5 INFORMATION PROVIDED BY **NGC**

NGC shall provide data to the **Balancing Mechanism Reporting Agent** or **BSCCo** each day in accordance with the requirements of the **BSC** in order that the data may be made available to **Users** via the **Balancing Mechanism Reporting Service** (or by such other means) in each case as provided in the **BSC**. Where **NGC** provides such information associated with the secure operation of the **System** to the **Balancing Mechanism Reporting Agent**, the provision of that information is additionally provided for in the following sections of this BC1.5. **NGC** shall be taken to have fulfilled its obligations to provide data under BC1.5.1, BC1.5.2, and BC1.5.3 by so providing such data to the **Balancing Mechanism Reporting Agent**.

BC1.5.1 **Demand** Estimates

Normally by 0900 hours each day, **NGC** will make available to **Users** a forecast of **GB National Demand** and the **Demand** for a number of pre-determined constraint groups (which may be updated from time to time, as agreed between **NGC** and **BSCCo**) for each **Settlement Period** of the next following **Operational Day**. Normally by 1200 hours each day, **NGC** will make available to **Users** a forecast of **GB Transmission System Demand** for each **Settlement Period** of the next **Operational Day**. Further details are provided in Appendix 2.

BC1.5.2 **Indicated Margin** and **Indicated Imbalance**

Normally by 1200 hours each day, **NGC** will make available to **Users** an **Indicated Margin** and an **Indicated Imbalance** for each **Settlement Period** of the next following **Operational Day**. **NGC** will use reasonable endeavours to utilise the most recent data received from **Users** in preparing for this release of data. Further details are provided in Appendix 2.

BC1.5.3 Provision of Updated Information

NGC will provide updated information on **Demand** and other information at various times throughout each day, as detailed in Appendix 2. **NGC** will use reasonable endeavours to utilise the most recent data received from **Users** in preparing for this release of data.

BC1.5.4 Reserve and Inadequate **System Margin**

Contingency Reserve

(a) The amount of **Contingency Reserve** required at the day ahead stage and in subsequent timescales will be decided by **NGC** on the basis of historical trends in the reduction in availability of **Large Power Stations** and increases in forecast **Demand** up to real time operation. Where **Contingency Reserve** is to be allocated to thermal **Gensets**, **NGC** will instruct through a combination of **Ancillary Services** instructions and **Bid-Offer Acceptances**, the time at which such **Gensets** are required to synchronise, such instructions to be consistent with **Dynamic Parameters** and other contractual arrangements.

Operating Reserve

(b) The amount of **Operating Reserve** required at any time will be determined by **NGC** having regard to the **Demand** levels, **Large Power Station** availability shortfalls and the greater of the largest secured loss of generation (ie, the loss of generation against which, as a requirement of the **Licence Standards,** the **GB Transmission System** must be secured) or loss of import from or sudden export to **External Interconnections**. **NGC** will allocate **Operating Reserve** to the appropriate **BM Units** and **Generating Units** so as to fulfil its requirements according to the **Ancillary Services** available to it and as provided in the **BCs**.

Inadequate **System Margin**

(c) In the period following 1200 hours each day and in relation to the following **Operational Day, NGC** will monitor the total of the Maximum Export Limit component of the **Export and Import Limits** received against forecast **GB Transmission System Demand** and the **Operating Margin** and will take account of **Dynamic Parameters** to see whether the anticipated level of the **System Margin** for any period is insufficient.

(d) Where the level of the **System Margin** for any period is, in **NGC 's** reasonable opinion, anticipated to be insufficient, **NGC** will send (by such data transmission facilities as have been agreed) a **GB Transmission System Warning** - **Inadequate System Margin** in accordance with OC7.4.8 to each **Generator**, **Supplier, Externally Interconnected System Operator, Network Operator** and **Non-Embedded Customer**.

(e) Where, in **NGC's** judgement the **System Margin** at any time during the current **Operational Day** is such that there is a high risk of **Demand** reduction being instructed, a **GB Transmission System Warning** - **High Risk of Demand Reduction** will be issued, in accordance with OC7.4.8.

(f) The monitoring will be conducted on a regular basis and a revised **GB Transmission System Warning** - **Inadequate System Margin** or **High Risk of Demand Reduction** may be sent out from time to time, including within the post **Gate Closure** phase. This will reflect any changes in **Physical**

Notifications and **Export and Import Limits** which have been notified to **NGC**, and will reflect any **Demand Control** which has also been so notified. This will also reflect generally any changes in the forecast **Demand** and the relevant **Operating Margin**.

(g) To reflect changing conditions, a **GB Transmission System Warning - Inadequate System Margin** may be superseded by a **GB Transmission System Warning - High Risk of Demand Reduction** and vice-versa.

(h) If the continuing monitoring identifies that the **System Margin** is anticipated, in **NGC's** reasonable opinion, to be sufficient for the period for which previously a **GB Transmission System Warning** had been issued, **NGC** will send (by such data transmission facilities as have been agreed) a **Cancellation of GB Transmission System Warning** to each **User** who had received a **GB Transmission System Warning - Inadequate System Margin** or **High Risk of Demand Reduction** for that period. The issue of a **Cancellation of GB Transmission System Warning** is not an assurance by **NGC** that in the event the **System Margin** will be adequate, but reflects **NGC's** reasonable opinion that the insufficiency is no longer anticipated.

(i) If continued monitoring indicates the **System Margin** becoming inadequate **NGC** may issue further **GB Transmission System Warnings - Inadequate System Margin** or **High Risk of Demand Reduction.**

(j) **NGC** may issue a **GB Transmission System Warning - Inadequate System Margin** or **High Risk of Demand Reduction** for any period, not necessarily relating to the following **Operational Day**, where it has reason to believe there will be inadequate **System Margin** over a period (for example in periods of protracted **Plant** shortage, the provisions of OC7.4.8.6 apply).

BC1.5.5 System and Localised NRAPM (Negative Reserve Active Power Margin)

(a) (i) **System Negative Reserve Active Power Margin**

Synchronised Gensets must at all times be capable of reducing output such that the total reduction in output of all **Synchronised Gensets** is sufficient to offset the loss of the largest secured demand on the **System** and must be capable of sustaining this response;

(ii) **Localised Negative Reserve Active Power Margin**

Synchronised Gensets must at all times be capable of reducing output to allow transfers to and from the **System Constraint Group** (as the case may be) to be contained within such reasonable limit as **NGC** may determine and must be capable of sustaining this response.

(b) **NGC** will monitor the total of **Physical Notifications** of exporting **BM Units** and **Generating Units** (where appropriate) received against forecast **Demand** and, where relevant, the appropriate limit on transfers to and from a **System Constraint Group** and will take account of **Dynamic Parameters** and **Export and Import Limits** received to see whether the level of **System NRAPM** or **Localised NRAPM** for any period is likely to be insufficient. In addition, **NGC** may increase the required margin of **System NRAPM** or **Localised NRAPM** to allow for variations in forecast **Demand**. In the case of **System NRAPM**, this may be by an amount (in **NGC's** reasonable discretion) not exceeding five per cent of forecast **Demand** for the period in question. In

the case of **Localised NRAPM**, this may be by an amount (in **NGC's** reasonable discretion) not exceeding ten per cent of the forecast **Demand** for the period in question;

(c) Where the level of **System NRAPM** or **Localised NRAPM** for any period is, in **NGC 's** reasonable opinion, likely to be insufficient **NGC** may contact all **Generators** in the case of low **System NRAPM** and may contact **Generators** in relation to relevant **Gensets** in the case of low **Localised NRAPM**. **NGC** will raise with each **Generator** the problems it is anticipating due to low **System NRAPM** or **Localised NRAPM** and will discuss whether, in advance of **Gate Closure**:-

(i) any change is possible in the **Physical Notification** of a **BM Unit** which has been notified to **NGC**; or

(ii) any change is possible to the **Physical Notification** of a **BM Unit** within an **Existing AGR Plant** within the **Existing AGR Plant Flexibility Limit;**

in relation to periods of low **System NRAPM** or (as the case may be) low **Localised NRAPM. NGC** will also notify each **Externally Interconnected System Operator** of the anticipated low **System NRAPM** or **Localised NRAPM** and request assistance in obtaining changes to **Physical Notifications** from **BM Units** in that **External System**.

(d) Following **Gate Closure**, the procedure of BC2.9.4 will apply.

BC1.6 Special Provisions relating to **Network Operators**

BC1.6.1 **User System** Data from **Network Operators**

(a) By 1000 hours each day each **Network Operator** will submit to **NGC** in writing, confirmation or notification of the following in respect of the next **Operational Day**:

(i) constraints on its **User System** which **NGC** may need to take into account in operating the **GB Transmission System**. In this BC1.6.1 the term "constraints" shall include restrictions on the operation of **Embedded CCGT Units** as a result of the **User System** to which the **CCGT Unit** is connected at the **User System Entry Point** being operated or switched in a particular way, for example, splitting the relevant busbar. It is a matter for the **Network Operator** and the **Generator** to arrange the operation or switching, and to deal with any resulting consequences. The **Generator,** after consultation with the **Network Operator**, is responsible for ensuring that no **BM Unit Data** submitted to **NGC** can result in the violation of any such constraint on the **User System**.

(ii) the requirements of voltage control and Mvar reserves which **NGC** may need to take into account for **System** security reasons.

(b) The form of the submission will be:

(i) that of a **BM Unit** output or consumption (for MW and for Mvar, in each case a fixed value or an operating range, on the **User System** at the **User System Entry Point**, namely in the case of a **BM Unit** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) on the higher voltage side of the generator step-up transformer) required for particular **BM Units** (identified in the submission) connected to that **User System** for each **Settlement Period** of the next **Operational Day**;

(ii) adjusted in each case for MW by the conversion factors applicable for those **BM Units** to provide output or consumption at the relevant **Grid Supply Points**.

(c) At any time and from time to time, between 1000 hours each day and the expiry of the next **Operational Day**, each **Network Operator** must submit to **NGC** in writing any revisions to the information submitted under this BC1.6.1.

BC1.6.2 Notification of Times to **Network Operators**

NGC will make available indicative **Synchronising** and **De-Synchronising** times to each **Network Operator**, but only relating to **BM Units** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) or a **CCGT Module Embedded** within that **Network Operator's User System** and those **Gensets** directly connected to the **GB Transmission System** which **NGC** has identified under **OC2** as being those which may, in the reasonable opinion of **NGC**, affect the integrity of that **User System**. If in preparing for the operation of the **Balancing Mechanism**, **NGC** becomes aware that a **BM Unit** directly connected to the **GB Transmission System** may, in its reasonable opinion, affect the integrity of that other **User System** which, in the case of a **BM Unit** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) or a **CCGT Module,** it had not so identified under **OC2**, then **NGC** may make available details of its indicative **Synchronising** and **De-Synchronising** times to that other **User** and shall inform the relevant **BM Participant** that it has done so, identifying the **BM Unit** concerned.

BC1.7 Special Actions

BC1.7.1 **NGC** may need to identify special actions (either pre- or post-fault) that need to be taken by specific **Users** in order to maintain the integrity of the **GB Transmission System** in accordance with the **Licence Standards** and **NGC Operational Strategy**.

(a) For a **Generator** special actions will generally involve a **Load** change or a change of required Notice to Deviate from Zero NDZ, in a specific timescale on individual or groups of **Gensets**. They may also include selection of **"System** to **Genset"** or **"System** to **CCGT Unit"**, as the case may be, intertrip schemes for stability or thermal reasons.

(b) For **Network Operators** these special actions will generally involve **Load** transfers between **Grid Supply Points** or arrangements for **Demand** reduction by manual or automatic means.

(c) For **Externally Interconnected System Operators** (in their co-ordinating role for **Interconnector Users** using their **External System**) these special actions will generally involve an increase or decrease of net power flows across an **External Interconnection** by either manual or automatic means.

BC1.7.2 These special actions will be discussed and agreed with the relevant **User** as appropriate. The actual implementation of these special actions may be part of an "emergency circumstances" procedure described under **BC2**. If not agreed, generation or **Demand** may be restricted or may be at risk.

BC1.7.3 **NGC** will normally issue the list of special actions to the relevant **Users** by 1700 hours on the day prior to the day to which they are to apply.

APPENDIX 1

BM UNIT DATA
AND GENERATING UNIT DATA

More detail about valid values required under the **Grid Code** for **BM Unit Data** and **Generating Unit Data** may be identified by referring to the **Data Validation, Consistency and Defaulting Rules.** In the case of **Embedded BM Units**~~,~~ and **Generating Units** the **BM Unit Data** and the **Generating Unit Data** shall represent the value at the relevant **Grid Supply Point**. ~~For the purposes of a **Cascade Hydro Scheme**, where~~Where data is submitted on a **Generating Unit** basis, the provisions of this Appendix 1 shall in respect of such data submission apply as if references to **BM Unit** were replaced with **Generating Unit**. Where **NGC** and the relevant **User** agree, submission on a **Generating Unit** basis (in whole or in part) may be otherwise than in accordance with the provisions of this Appendix 1.

BC1.A.1.1 Physical Notifications

For each **BM Unit**, the **Physical Notification** is a series of MW figures and associated times, making up a profile of intended input or output of **Active Power** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate. For each **Settlement Period**, the first "from time" should be at the start of the **Settlement Period** and the last "to time" should be at the end of the **Settlement Period**.

The input or output reflected in the **Physical Notification** for a single **BM Unit** (or the aggregate **Physical Notifications** for a collection of **BM Units** at a **Grid Entry Point** or **Grid Supply Point** or to be transferred across an **External Interconnection,** owned or controlled by a single **BM Participant**) must comply with the following limits regarding maximum rates of change, either for a single change or a series of related changes :

- for a change of up to 300MW — no limit;
- for a change greater than 300MW and less than 1000MW — 50MW per minute;
- for a change of 1000MW or more — 40MW per minute,

unless prior arrangements have been discussed and agreed with **NGC**. This limitation is not intended to limit the Run-Up or Run-Down Rates provided as **Dynamic Parameters.**

An example of the format of **Physical Notification** is shown below. The convention to be applied is that where it is proposed that the **BM Unit** will be importing, the **Physical Notification** is negative.

Data	Name	BMU name	Time From	From level (MW)	Time To	To Level MW)
PN	TAGENT	BMUNIT01	2001-11-03 06:30	77	2001-11-03 07:00	100
PN	TAGENT	BMUNIT01	2001-11-03 07:00	100	2001-11-03 07:12	150
PN	TAGENT	BMUNIT01	2001-11-03 07:12	150	2001-11-03 07:30	175

A linear interpolation will be assumed between the **Physical Notification** From and To levels specified for the **BM Unit** by the **BM Participant**.

*BC1.A.1. 2 **Quiescent Physical Notifications (QPN)***

For each **BM Unit** (optional) — A series of MW figures and associated times, which describe the MW levels to be deducted from the **Physical Notification** of a **BM Unit** to determine a resultant operating level to which the **Dynamic Parameters** associated with that **BM Unit** apply.

An example of the format of data is shown below.

Data Name	BMU name	Time From	From level (MW)	Time To	To level (MW)
QPN	TAGENT	BMUNIT04	2001-11-03 06:30	-200	2001-11-03 07:00	-220
QPN	TAGENT	BMUNIT04	2001-11-03 07:00	-220	2001-11-03 07:18	-245
QPN	TAGENT	BMUNIT04	2001-11-03 07:18	-245	2001-11-03 07:30	-300

A linear interpolation will be assumed between the **QPN** From and To levels specified for the **BM Unit** by the **BM Participant**.

*BC1.A.1.3 **Export and Import Limits***

BC1.A.1.3.1 Maximum Export Limit (MEL) — A series of MW figures and associated times, making up a profile of the maximum level at which the **BM Unit** may be exporting (in MW) to the **GB Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate.

BC1.A.1.3.2 Maximum Import Limit (MIL) — A series of MW figures and associated times, making up a profile of the maximum level at which the **BM Unit** may be importing (in MW) from the **GB Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate.

An example format of data is shown below. MEL must be positive or zero, and MIL must be negative or zero.

Data Name	BMU name	Time From	From level (MW)	Time To	To level (MW)
MEL	TAGENT	BMUNIT01	2001-11-03 05:00	410	2001-11-03 09:35	410
MEL	TAGENT	BMUNIT01	2001-11-03 09:35	450	2001-11-03 12:45	450
MIL	TAGENT	BMUNIT04	2001-11-03 06:30	-200	2001-11-03 07:00	-220

*BC1.A.1.4 **Bid-Offer Data***

For each **BM Unit** for each **Settlement Period**:

Up to 10 Bid-Offer Pairs as defined in the **BSC.**

An example of the format of data is shown below.

Data	Name	BMU name	Time from	Time to	Pair ID	From Level (MW)	To Level (MW)	Offer (£/ MWhr)	Bid (£/ MWhr)
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	4	30	30	40	35
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	3	20	20	35	30
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	2	40	40	32	27
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	1	50	50	30	25
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	-1	-40	-40	25	20
BOD	TAGENT	BMUNIT01	2000-10-28 12:00	2000-10-28 13:30	-2	-30	-30	23	17

This example of Bid-Offer data is illustrated graphically below:-

BC1.A.1.5 Dynamic Parameters

The **Dynamic Parameters** comprise:

- Up to three Run-Up Rate(s) and up to three Run-Down Rate(s), expressed in MW/minute and associated Run-Up Elbow(s) and Run-Down Elbow(s), expressed in MW for output and the same for input. It should be noted that Run-Up Rate(s) are applicable to a MW figure becoming more positive;

- Notice to Deviate from Zero (NDZ) output or input, being the notification time required for a **BM Unit** to start importing or exporting energy, from a zero **Physical Notification** level as a result of a **Bid-Offer Acceptance**, expressed in minutes;

- Notice to Deliver Offers (NTO) and Notice to Deliver Bids (NTB), expressed in minutes, indicating the notification time required for a **BM Unit** to start delivering Offers and Bids respectively from the time that the **Bid-Offer Acceptance** is issued. In the case of a **BM Unit** comprising a **Genset**, NTO and NTB will be set to a maximum period of two minutes;

- Minimum Zero Time (MZT), being either the minimum time that a **BM Unit** which has been exporting must operate at zero or be importing, before returning to exporting or the minimum time that a **BM Unit** which has been importing must operate at zero or be exporting before returning to importing, as a result of a **Bid-Offer Acceptance**, expressed in minutes;

- Minimum Non-Zero Time (MNZT), expressed in minutes, being the minimum time that a **BM Unit** can operate at a non-zero level as a result of a **Bid-Offer Acceptance**;

- Stable Export Limit (SEL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, export to the **GB Transmission System**;

- Stable Import Limit (SIL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, import from the **GB Transmission System**;

- Maximum Delivery Volume (MDV), expressed in MWh, being the maximum number of MWhr of Offer (or Bid if MDV is negative) that a particular **BM Unit** may deliver within the associated Maximum Delivery Period (MDP), expressed in minutes, being the maximum period over which the MDV applies.

BC1.A.1.6 CCGT Module Matrix

BC1.A.1.6.1 **CCGT Module Matrix** showing the combination of **CCGT Units** running in relation to any given MW output, in the form of the diagram illustrated below. The **CCGT Module Matrix** is designed to achieve certainty in knowing the number of **CCGT Units** synchronised to meet the **Physical Notification** and to achieve a **Bid-Offer Acceptance**.

BC1.A.1.6.2 In the case of a **Range CCGT Module**, and if the **Generator** so wishes, a request for the single **Grid Entry Point** at which power is provided from the **Range CCGT Module** to be changed in accordance with the provisions of BC1.A.1.6.4 below:-

CCGT Module Matrix example form

CCGT MODULE ACTIVE POWER	**CCGT GENERATING UNITS*** AVAILABLE								
	1st GT	2nd GT	3rd GT	4th GT	5th GT	6th GT	1st ST	2nd ST	3rd ST
MW	**ACTIVE POWER OUTPUT**								
	150	150	150				100		
0MW to 150MW	/								
151MW to 250MW	/						/		
251MW to 300MW	/	/							
301MW to 400MW	/	/					/		
401MW to 450MW	/	/	/						
451MW to 550MW	/	/	/				/		

* as defined in the Glossary and Definitions and not limited by BC1.2

BC1.A.1.6.3 In the absence of the correct submission of a **CCGT Module Matrix** the last submitted (or deemed submitted) **CCGT Module Matrix** shall be taken to be the **CCGT Module Matrix** submitted hereunder.

BC1.A.1.6.4 The data may also include in the case of a **Range CCGT Module**, a request for the **Grid Entry Point** at which the power is provided from the **Range CCGT Module** to be changed with effect from the beginning of the following **Operational Day** to another specified single **Grid Entry Point** (there can be only one) to that being used for the current **Operational Day**. **NGC** will respond to this request by 1600 hours on the day of receipt of the request. If **NGC** agrees to the request (such agreement not to be unreasonably withheld), the **Generator** will operate the **Range CCGT Module** in accordance with the request. If **NGC** does not agree, the **Generator** will, if it produces power from that **Range CCGT Module**, continue to provide power from the **Range CCGT Module** to the **Grid Entry Point** being used at the time of the request. The request can only be made up to 1100 hours in respect of the following **Operational Day**. No subsequent request to change can be made after 1100 hours in respect of the following **Operational Day**. Nothing in this paragraph shall prevent the busbar at the **Grid Entry Point** being operated in separate sections.

BC1.A.1.6.5 The principles set out in PC.A.3.2.3 apply to the submission of a **CCGT Module Matrix** and accordingly the **CCGT Module Matrix** can only be amended as follows:-

(a) Normal CCGT Module

if the **CCGT Module** is a **Normal CCGT Module**, the **CCGT Units** within that **CCGT Module** can only be amended such that the **CCGT Module** comprises different **CCGT Units** if **NGC** gives its prior consent in writing. Notice of the wish to amend the **CCGT Units** within such a **CCGT Module** must be given at least 6 months before it is wished for the amendment to take effect;

(b) Range CCGT Module

if the **CCGT Module** is a **Range CCGT Module**, the **CCGT Units** within that **CCGT Module** can only be amended such that the **CCGT Module** comprises different **CCGT Units** for a particular **Operational Day** if the relevant notification is given by 1100 hours on the day prior to the **Operational Day** in which the amendment is to take effect. No subsequent amendment may be made to the **CCGT Units** comprising the **CCGT Module** in respect of that particular **Operational Day**.

BC1.A.1.6.6 In the case of a **CCGT Module Matrix** submitted (or deemed to be submitted) as part of the other data for **CCGT Modules**, the output of the **CCGT Module** at any given instructed MW output must reflect the details given in the **CCGT Module Matrix**. It is accepted that in cases of change in MW in response to instructions issued by **NGC** there may be a transitional variance to the conditions reflected in the **CCGT Module Matrix**. In achieving an instruction the range of number of **CCGT Units** envisaged in moving from one MW output level to the other must not be departed from. Each **Generator** shall notify **NGC** as soon as practicable after the event of any such variance. It should be noted that there is a provision above for the **Generator** to revise the **CCGT Module Matrix**, subject always to the other provisions of this **BC1**;

BC1.A.1.6.7 Subject as provided above, **NGC** will rely on the **CCGT Units** specified in such **CCGT Module Matrix** running as indicated in the **CCGT Module Matrix** when it issues an instruction in respect of the **CCGT Module**;

BC1.A.1.6.8 Subject as provided in BC1.A.1.6.5 above, any changes to the **CCGT Module Matrix** must be notified immediately to **NGC** in accordance with the relevant provisions of **BC1**.

BC1.A.1.7 **Cascade Hydro Scheme Matrix**

BC1.A.1.7.1 A **Cascade Hydro Scheme Matrix** showing the performance of individual **Generating Units** forming part of a **Cascade Hydro Scheme** in response to **Bid-Offer Acceptance**. An example table is shown below:

Cascade Hydro Scheme Matrix example form.

Plant	Synchronises when offer is greater than…
Generating Unit 1	…..MW
Generating Unit 2	…..MW
Generating Unit 3	…..MW
Generating Unit 4	…..MW
Generating Unit 5	…..MW

APPENDIX 2

DATA TO BE MADE AVAILABLE BY NGC

BC1.A.2.1 Initial Day Ahead Demand Forecast

Normally by 09:00 hours each day, values (in MW) for each **Settlement Period** of the next following **Operational Day** of the following data items:-

i) Initial forecast of **GB National Demand;**

ii) Initial forecast of **Demand** for a number of predetermined constraint groups.

BC1.A.2.2 Initial Day Ahead Market Information

Normally by 12:00 hours each day, values (in MW) for each **Settlement Period** of the next following **Operational Day** of the following data items:-

i) Initial National **Indicated Margin**

This is the difference between the sum of **BM Unit** MELs and the forecast of **GB Transmission System Demand**.

ii) Initial National **Indicated Imbalance**

This is the difference between the sum of **Physical Notifications** for **BM Units** comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC1.2) or **CCGT Modules** and the forecast of **GB Transmission System Demand**.

iii) Forecast of **GB Transmission System Demand.**

BC1.A.2.3 Current Day and Day Ahead Updated Market Information

Data will normally be made available by the times shown below for the associated periods of time:

Target Data Release Time	Period Start Time	Period End Time
02:00	02:00 D0	05:00 D+1
10:00	10:00 D0	05:00 D+1
16:00	05:00 D+1	05:00 D+2
16:30	16:30 D0	05:00 D+1
22:00	22:00 D0	05:00 D+2

In this table, D0 refers to the current day, D+1 refers to the next day and D+2 refers to the day following D+1.

In all cases, data will be ½ hourly average MW values calculated by **NGC**. Information to be released includes:-

National Information

i) National **Indicated Margin**;

ii) National **Indicated Imbalance**;

iii) Updated forecast of **GB Transmission System Demand.**

Constraint Boundary Information (for each Constraint Boundary)

i) **Indicated Constraint Boundary Margin**;

This is the difference between the Constraint Boundary Transfer limit and the difference between the sum of **BM Unit** MELs and the forecast of local **Demand** within the constraint boundary.

ii) Local **Indicated Imbalance**;

This is the difference between the sum of **Physical Notifications** for **BM Units** comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC1.2) or **CCGT Modules** and the forecast of local **Demand** within the constraint boundary.

iii) Updated forecast of the local **Demand** within the constraint boundary.

< End of BC1 >