BALANCING CODE No 2

POST GATE CLOSURE PROCESS

BC2.1 INTRODUCTION

Balancing Code No 2 (**BC2**) sets out the procedure for:

a) the physical operation of **BM Units** and **Generating Units** in the absence of any instructions from **NGC**;

b) the acceptance by **NGC** of **Balancing Mechanism** Bids and Offers,

c) the calling off by **NGC** of **Ancillary Services**;

d) the issuing and implementation of **Emergency Instructions**; and

e) the issuing by **NGC** of other operational instructions and notifications.

In addition, **BC2** deals with any information exchange between **NGC** and **BM Participants** or specific **Users** that takes place after **Gate Closure**.

In this **BC2**, "consistent" shall be construed as meaning to the nearest integer MW level.

In this **BC2**, references to "a **BM Unit** returning to its **Physical Notification**" shall take account of any **Bid-Offer Acceptances** already issued to the **BM Unit** in accordance with BC2.7 and any **Emergency Instructions** already issued to the **BM Unit** or **Generating Unit** in accordance with BC2.9.

BC2.2 OBJECTIVE

The procedure covering the operation of the **Balancing Mechanism** and the issuing of instructions to **Users** is intended to enable **NGC** as far as possible to maintain the integrity of the **GB Transmission System** together with the security and quality of supply.

Where reference is made in this **BC2** 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 certain provisions of **BC2** on a **Generating Unit** basis.

BC2.3 SCOPE

BC2 applies to **NGC** and to **Users**, which in this **BC2** means:-

(a) **BM Participants;**

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

Network Operators.

BC2.4 INFORMATION USED

BC2.4.1 The information which **NGC** shall use, together with the other information available to it, in assessing:-

(a) which bids and offers to accept;

(b) which **BM Units** and/or **Generating Units** to instruct to provide **Ancillary Services**;

(c) the need for and formulation of **Emergency Instructions;** and

(d) other operational instructions and notifications which **NGC** may need to issue

will be:

(a) the **Physical Notification** and **Bid-Offer Data** submitted under **BC1**;

(b) **Export and Import Limits**, **QPNs**, and **Joint BM Unit Data** in respect of that **BM Unit**~~,~~ and/or **Generating Unit** supplied under **BC1** (and any revisions under **BC1** and **BC2** to the data); and

(c) **Dynamic Parameters** submitted or revised under this **BC2.**

BC2.4.2 As provided for in BC1.5.4, **NGC** will monitor the total of the Maximum Export Limit component of the **Export and Import Limits** against forecast **Demand** and the **Operating Margin** and will take account of **Dynamic Parameters** to see whether the anticipated level of **System Margin** is insufficient. This will reflect any changes in **Export and Import Limits** which have been notified to **NGC**, and will reflect any **Demand Control** which has also been so notified. **NGC** may issue new or revised **GB Transmission System Warnings – Inadequate System Margin** or **High Risk of Demand Reduction** in accordance with BC1.5.4.

BC2.5 PHYSICAL OPERATION OF **BM UNITS**

BC2.5.1 Accuracy of **Physical Notifications**

As described in BC1.4.2(a), **Physical Notifications** must represent the **BM Participant's** best estimate of expected input or output of **Active Power** and shall be prepared in accordance with **Good Industry Practice**. Each **BM Participant** must, applying **Good Industry Practice**, ensure that each of its **BM Units** follows the **Physical Notification** in respect of that **BM Unit** (and each of its **Generating Units** follows the **Physical Notification** in the case of **Physical Notifications** supplied under BC1.4.2(a)(2)) prevailing at **Gate Closure** (the data in which will be utilised in producing the **Final Physical Notification Data** in accordance with the **BSC**) subject to:

(a) variations arising from the issue of **Bid-Offer Acceptances** which have been confirmed by the **BM Participant**;

(b) instructions by **NGC** in relation to that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) which require, or compliance with which would result in, a variation in output or input of that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**); or

(c) any variations arising from compliance with provisions of **BC1**, **BC2** or **BC3** which provide to the contrary,

(which in each case gives rise to an obligation (applying **Good Industry Practice**) to follow such **Physical Notification** as amended by such variations and/or instructions), unless in relation to any such obligation it is prevented from so doing as a result of an unavoidable event (existing or anticipated) in relation to that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) which requires a variation in output or input of that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**). Examples (on a non-exhaustive basis) of such an unavoidable event are plant breakdowns, events requiring a variation of input or output on safety grounds (relating to personnel or plant), events requiring a variation of input or output to maintain compliance with the relevant Statutory Water Management obligations and uncontrollable variations of input of **Active Power**.

Any anticipated variation in input or output from the **Physical Notification** in respect of that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme**~~ a **Generating Unit**) prevailing at **Gate Closure** (except for variations arising from the issue of **Bid-Offer Acceptances** or instructions by **NGC** as outlined above) for any **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) post **Gate Closure** must be notified to **NGC** without delay by the relevant **BM Participant** (or the relevant person on its behalf). Implementation of this notification should normally be achieved by the submission of revisions to the **Export and Import Limits** in accordance with BC2.5.3 below.

BC2.5.2 **Synchronising** and **De-Synchronising** times

BC2.5.2.1 The **Final Physical Notification Data** provides indicative **Synchronising** and **De-Synchronising** times to **NGC** in respect of any **BM Unit** which is **De-Synchronising** or is anticipated to be **Synchronising** post **Gate Closure**.

Any delay of greater than five minutes to the **Synchronising** or any advancement of greater than five minutes to the **De-Synchronising** of a **BM Unit** must be notified to **NGC** without delay by the submission of a revision of the **Export and Import Limits**.

BC2.5.2.2 Except in the circumstances provided for in BC2.5.2.3, BC2.5.2.4, BC2.5.5.1 or BC2.9, no **BM Unit** (nor ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) is to be **Synchronised** or **De-Synchronised** unless:-

(a) a **Physical Notification** had been submitted to **NGC** prior to **Gate Closure** indicating that a **Synchronisation** or **De-Synchronisation** is to occur; or

(b) **NGC** has issued a **Bid-Offer Acceptance** requiring **Synchronisation** or **De-Synchronisation** of that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**).

BC2.5.2.3 **BM Participants** must only **Synchronise** or **De-Synchronise BM Units** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**);

(a) at the times indicated to **NGC**, or

(b) at times consistent with variations in output or input arising from provisions described in BC2.5.1,

(within a tolerance of +/- 5 minutes) or unless that occurs automatically as a result of intertrip schemes or **Low Frequency Relay** operations or an **Ancillary Service** pursuant to an **Ancillary Services Agreement**. For a **BM Unit** in relation to which the intertrip has been instructed to be switched into service under BC2.10 in order to protect the **GB Transmission System**, if it is **De-Synchronised** due to an operation of the intertrip that is not due to a fault at the **BM Unit** then a **Bid-Offer Acceptance** will be treated as having been issued. This will reflect the operation of the intertrip in order to form the **Bid-Offer Acceptance** data to be given to the **BMRA** under the **BSC**.

BC2.5.2.4 **De-Synchronisation** may also take place without prior notification to **NGC** as a result of plant breakdowns or if it is done purely on safety grounds (relating to personnel or plant). If that happens **NGC** must be informed immediately that it has taken place and a revision to **Export and Import Limits** must be submitted in accordance with BC2.5.3.3. Following any **De-Synchronisation** occurring as a result of plant failure, no **Synchronisation** of that **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) is to take place without **NGC's** agreement, such agreement not to be unreasonably withheld.

In the case of **Synchronisation** following an unplanned **De-Synchronisation** within the preceding 15 minutes, a minimum of 5 minutes notice of its intention to **Synchronise** should normally be given to **NGC** (via a revision to **Export and Import Limits**)**.** In the case of any other unplanned **De-Synchronisation** where the **User** plans to **Synchronise** before the expiry of the current **Balancing Mechanism** period, a minimum of 15 minutes notice of **Synchronisation** should normally be given to **NGC** (via a revision to **Export and Import Limits**). In addition, the rate at which the **BM Unit** is returned to its **Physical Notification** is not to exceed the limits specified in **BC1**, Appendix 1 without **NGC's** agreement.

NGC will either agree to the **Synchronisation** or issue a **Bid-Offer Acceptance** in accordance with BC2.7 to delay the **Synchronisation. NGC** may agree to an earlier **Synchronisation** if **System** conditions allow.

BC2.5.2.5 Notification of Times to **Network Operators**

NGC will make changes to the **Synchronising** and **De-Synchronising** times available to each **Network Operator**, but only relating to **BM Units Embedded** within its **User System** and those **BM Units** directly connected to the **GB Transmission System** which **NGC** has identified under **OC2** and/or **BC1** as being those which may, in the reasonable opinion of **NGC**, affect the integrity of that **User System** and shall inform the relevant **BM Participant** that it has done so, identifying the **BM Unit** concerned.

Each **Network Operator** must notify **NGC** of any changes to its **User System** Data as soon as practicable in accordance with BC1.6.1(c).

BC2.5.3 Revisions to **BM Unit Data**

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

BC2.5.3.1 At any time, any **BM Participant** (or the relevant person on its behalf) may, in respect of any of its **BM Units**, submit to **NGC** the data listed in **BC1**, Appendix 1

under the heading of **Dynamic Parameters** from the **Control Point** of its **BM Unit** to amend the data already held by **NGC** (including that previously submitted under this BC2.5.3.1) for use in preparing for and operating the **Balancing Mechanism**. The change will take effect from the time that it is received by **NGC**. For the avoidance of doubt, the **Dynamic Parameters** submitted to **NGC** under BC1.4.2(e) are not used within the current **Operational Day**. The **Dynamic Parameters** submitted under this BC2.5.3.1 shall reasonably reflect the true current operating characteristics of the **BM Unit** and shall be prepared in accordance with **Good Industry Practice**.

BC2.5.3.2 Revisions to **Export and Import Limits** or **Other Relevant Data** supplied (or revised) under **BC1** must be notified to **NGC** without delay as soon as any change becomes apparent to the **BM Participant** (or the relevant person on its behalf) via the **Control Point** for the **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) to ensure that an accurate assessment of **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) capability is available to **NGC** at all times. These revisions should be prepared in accordance with **Good Industry Practice** and may be submitted by use of electronic data communication facilities or by telephone.

BC2.5.3.3 Revisions to **Export and Import Limits** must be made by a **BM Participant** (or the relevant person on its behalf) via the **Control Point** in the event of any **De-Synchronisation** of a **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) in the circumstances described in BC2.5.2.4 if the **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) is no longer available for any period of time. Revisions must also be submitted in the event of plant failures causing a reduction in input or output of a **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) even if that does not lead to **De-Synchronisation**. Following the correction of a plant failure, the **BM Participant** (or the relevant person on its behalf) must notify **NGC** via the **Control Point** of a revision to the **Export and Import Limits**, if appropriate, of the **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**), using reasonable endeavours to give a minimum of 5 minutes notice of its intention to return to its **Physical Notification**. The rate at which the **BM Unit** (or ~~in the case of a **Cascade Hydro Scheme** a~~ **Generating Unit**) is returned to its **Physical Notification** is not to exceed the limits specified in **BC1**, Appendix 1 without **NGC's** agreement.

BC2.5.4 Operation in the absence of instructions from **NGC**

In the absence of any **Bid-Offer Acceptances**, **Ancillary Service** instructions issued pursuant to BC2.8 or **Emergency Instructions** issued pursuant to BC2.9:

(a) as provided for in BC3, each **Synchronised Genset** producing **Active Power** must operate at all times in **Limited Frequency Sensitive Mode** (unless instructed in accordance with BC3.5.4 to operate in **Frequency Sensitive Mode**);

(b) in the absence of any Mvar **Ancillary Service** instructions, the Mvar output of each **Synchronised Genset** should be 0 Mvar upon **Synchronisation** at the circuit-breaker where the **Genset** is **Synchronised**;

(c) the excitation system, unless otherwise agreed with **NGC**, must be operated only in its constant terminal voltage mode of operation with VAR limiters in service, with any constant **Reactive Power** output control mode or constant **Power Factor** output control mode always disabled, unless agreed otherwise with **NGC**. In the event of any change in **System** voltage, a **Generator** must not take any action to override automatic Mvar response which is produced as a result of constant terminal voltage mode of operation of the automatic excitation control system unless instructed otherwise by **NGC** or unless immediate action is necessary to comply with **Stability Limits** or unless constrained by plant operational limits or safety grounds (relating to personnel or plant);

(d) In the absence of any Mvar **Ancillary Service** instructions, the Mvar output of each **Genset** should be 0 Mvar immediately prior to **De-Synchronisation** at the circuit-breaker where the **Genset** is **Synchronised**, other than in the case of a rapid unplanned **De-Synchronisation**.

(e) a **Generator** should at all times operate its **CCGT Units** in accordance with the applicable **CCGT Module Matrix**;

(f) in the case of a **Range CCGT Module**, a **Generator** must operate that **CCGT Module** so that power is provided at the single **Grid Entry Point** identified in the data given pursuant to PC.A.3.2.1 or at the single **Grid Entry Point** to which **NGC** has agreed pursuant to BC1.4.2(f);

(g) in the event of the **System Frequency** being above 50.3Hz or below 49.7Hz, **BM Participants** must not commence any reasonably avoidable action to regulate the input or output of any **BM Unit** in a manner that could cause the **System Frequency** to deviate further from 50Hz without first using reasonable endeavours to discuss the proposed actions with **NGC**. **NGC** shall either agree to these changes in input or output or issue a **Bid-Offer Acceptance** in accordance with BC2.7 to delay the change.

BC2.5.5 Commencement or Termination of Participation in the **Balancing Mechanism**

BC2.5.5.1 In the event that a **BM Participant** in respect of a **BM Unit** with a **Demand Capacity** with a magnitude of less than 50MW in England and Wales or less than 5MW in Scotland or comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC2.2) and/or **CCGT Modules** at a **Small Power Station** notifies **NGC** at least 30 days in advance that from a specified **Operational Day** it will:

(a) no longer submit **Bid-Offer Data** under BC1.4.2(d), then with effect from that **Operational Day** that **BM Participant** no longer has to meet the requirements of BC2.5.1 nor the requirements of CC6.5.8(b) in relation to that **BM Unit**. Also, with effect from that **Operational Day**, any defaulted **Physical Notification** and defaulted **Bid-Offer Data** in relation to that **BM Unit** arising from the **Data Validation, Consistency and Defaulting Rules** will be disregarded and the provisions of BC2.5.2 will not apply;

(b) submit **Bid-Offer Data** under BC1.4.2(d), then with effect from that **Operational Day** that **BM Participant** will need to meet the requirements of BC2.5.1 and the requirements of CC6.5.8(b) in relation to that **BM Unit**.

BC2.5.5.2 In the event that a **BM Participant** in respect of a **BM Unit** with a **Demand Capacity** with a magnitude of 50MW or greater in England and Wales or 5MW or greater in Scotland or comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC2.2) and/or **CCGT Modules** at a **Medium Power Station** or

Large Power Station notifies **NGC** at least 30 days in advance that from a specified **Operational Day** it will:

(a) no longer submit **Bid-Offer Data** under BC1.4.2(d), then with effect from that **Operational Day** that **BM Participant** no longer has to meet the requirements of CC6.5.8(b) in relation to that **BM Unit**; Also, with effect from that **Operational Day**, any defaulted **Bid-Offer Data** in relation to that **BM Unit** arising from the **Data Validation, Consistency and Defaulting Rules** will be disregarded;

(b) submit **Bid-Offer Data** under BC1.4.2(d), then with effect from that **Operational Day** that **BM Participant** will need to meet the requirements of CC6.5.8(b) in relation to that **BM Unit**.

BC2.6 COMMUNICATIONS

Electronic communications are always conducted in GMT. However, the input of data and display of information to **Users** and **NGC** and all other communications are conducted in London time.

BC2.6.1 Normal Communication with **Control Points**

(a) With the exception of BC2.6.1(c) below, **Bid-Offer Acceptances** and **Ancillary Service** instructions shall be given by automatic logging device and will be given to the **Control Point** for the **BM Unit**. For all **Planned Maintenance Outages** the provisions of BC2.6.5 will apply. For **Generating Units** communications under **BC2** shall be by telephone unless otherwise agreed by **NGC** and the **User**.

(b) **Bid-Offer Acceptances** and **Ancillary Service** instructions must be formally acknowledged immediately by the **BM Participant** (or the relevant person on its behalf) via the **Control Point** for the **BM Unit** or **Generating Unit** in respect of that **BM Unit** or that **Generating Unit**. The acknowledgement and subsequent confirmation or rejection, within two minutes of receipt, is normally given electronically by automatic logging device. If no confirmation or rejection is received by **NGC** within two minutes of the issue of the **Bid-Offer Acceptance**, then **NGC** will contact the **Control Point** for the **BM Unit** by telephone to determine the reason for the lack of confirmation or rejection. Any rejection must be given in accordance with BC2.7.3 or BC2.8.3.

(c) In the event of a failure of the logging device or a **NGC** computer system outage, **Bid-Offer Acceptances** and instructions will be given, acknowledged, and confirmed or rejected by telephone. The provisions of BC2.9.7 are also applicable.

(d) In the event that in carrying out the **Bid-Offer Acceptances** or providing the **Ancillary Services**, or when operating at the level of the **Final Physical Notification Data** as provided in BC2.5.1, an unforeseen problem arises, caused on safety grounds (relating to personnel or plant), **NGC** must be notified without delay by telephone.

(e) The provisions of BC2.5.3 are also relevant.

(f) Submissions of revised Mvar capability may be made by facsimile transmission, using the format given in Appendix 3 to **BC2**.

(g) Communication will normally be by telephone for any purpose other than **Bid-Offer Acceptances,** in relation to **Ancillary Services** or for revisions of Mvar Data.

BC2.6.2 Communication with **Control Points** in Emergency Circumstances

NGC will issue **Emergency Instructions** direct to the **Control Point** for each **BM Unit** [or **Generating Unit**] in **Great Britain**. **Emergency Instructions** to a **Control Point** will normally be given by telephone (and will include an exchange of operator names).

BC2.6.3 Communication with **Network Operators** in Emergency Circumstances

NGC will issue **Emergency Instructions** direct to the **Network Operator** at each **Control Centre** in relation to special actions and **Demand Control**. **Emergency Instructions** to a **Network Operator** will normally be given by telephone (and will include an exchange of operator names). **OC6** contains further provisions relating to **Demand Control** instructions.

BC2.6.4 Communication with **Externally Interconnected System Operators** in Emergency Circumstances

NGC will issue **Emergency Instructions** directly to the **Externally Interconnected System Operator** at each **Control Centre**. **Emergency Instructions** to an **Externally Interconnected System Operator** will normally be given by telephone (and will include an exchange of operator names).

BC2.6.5 Communications during planned outages of electronic data communication facilities

Planned Maintenance Outages will normally be arranged to take place during periods of low data transfer activity. Upon any such **Planned Maintenance Outage** in relation to a post **Gate Closure** period:-

(a) **BM Participants** should operate in relation to any period of time in accordance with the **Physical Notification** prevailing at **Gate Closure** current at the time of the start of the **Planned Maintenance Outage** in relation to each such period of time. Such operation shall be subject to the provisions of BC2.5.1, which will apply as if set out in this BC2.6.5. No further submissions of **BM Unit Data** (other than data specified in BC1.4.2(c) and BC1.4.2(e)) should be attempted or **Generating Unit Data**. 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** or **Generating Unit** so affected;

(b) 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;

(c) **NGC** will issue **Bid-Offer Acceptances** by telephone; and

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

(e) The provisions of BC2.9.7 may also be relevant.

BC2.7 BID-OFFER ACCEPTANCES

BC2.7.1 Acceptance of bids and offers by **NGC**

Bid-Offer Acceptances may be issued to the **Control Point** at any time following **Gate Closure.** Any **Bid-Offer Acceptance** will be consistent with the **Dynamic Parameters, QPNs, Export and Import Limits**, and **Joint BM Unit Data** of the **BM Unit** in so far as the **Balancing Mechanism** timescales will allow (see BC2.7.2).

(a) **NGC** is entitled to assume that each **BM Unit** is available in accordance with the **BM Unit Data** submitted unless and until it is informed of any changes.

(b) **Bid-Offer Acceptances** sent to the **Control Point** will specify the data necessary to define a MW profile to be provided (ramp rate break-points are not normally explicitly sent to the **Control Point**) and to be achieved consistent with the respective **BM Unit's Export and Import Limits, QPNs** and **Joint BM Unit Data** provided or modified under **BC1** or **BC2,** and **Dynamic Parameters** given under BC2.5.3 or, if agreed with the relevant **User,** such rate within those **Dynamic Parameters** as is specified by **NGC** in the **Bid-Offer Acceptances**.

(c) All **Bid-Offer Acceptances** will be deemed to be at the current "**Target Frequency**", namely where a **Genset** is in **Frequency Sensitive Mode** they refer to target output at **Target Frequency**.

(d) The form of and terms to be used by **NGC** in issuing **Bid-Offer Acceptances** together with their meanings are set out in Appendix 1 in the form of a non-exhaustive list of examples.

BC2.7.2 Consistency with **Export and Import Limits, QPNs** and **Dynamic Parameters**

(a) **Bid-Offer Acceptances** will be consistent with the **Export and Import Limits**, **QPNs**, and **Joint BM Unit Data** provided or modified under **BC1** or **BC2** and the **Dynamic Parameters** provided or modified under **BC2**. **Bid-Offer Acceptances** may also recognise **Other Relevant Data** provided or modified under **BC1** or **BC2**

(b) In the case of consistency with **Dynamic Parameters** this will be limited to the time until the end of the **Settlement Period** for which **Gate Closure** has most recently occurred. If **NGC** intends to issue a **Bid-Offer Acceptance** covering a period after the end of the **Settlement Period** for which **Gate Closure** has most recently occurred, based upon the then submitted **Dynamic Parameters**, **QPN's**, **Export and Import Limits**, **Bid-Offer Data** and **Joint BM Unit Data** applicable to that period, **NGC** will indicate this to the **BM Participant** at the **Control Point** for the **BM Unit**. The intention will then be reflected in the issue of a **Bid-Offer Acceptance** to return the **BM Unit** to its previously notified **Physical Notification** after the relevant **Gate Closure** provided the submitted data used to formulate this intention has not changed and subject to **System** conditions which may affect that intention. Subject to that, assumptions regarding **Bid-Offer Acceptances** may be made by **BM Participants** for **Settlement Periods** for which **Gate Closure** has not yet occurred when assessing consistency with **Dynamic Parameters** in **Settlement Periods** for which **Gate Closure** has occurred. If no such subsequent **Bid–Offer Acceptance** is issued, the original **Bid-Offer Acceptance** will include an instantaneous return to **Physical Notification** at the end of the **Balancing Mechanism** period.

BC2.7.3 Confirmation and Rejection of Acceptances

Bid-Offer Acceptances may only be rejected by a **BM Participant** :-

(a) on safety grounds (relating to personnel or plant) as soon as reasonably possible and in any event within five minutes; or

(b) because they are not consistent with the **Export and Import Limits, QPNs**, **Dynamic Parameters** or **Joint BM Unit Data** applicable at the time of issue of the **Bid-Offer Acceptance**.

A reason must always be given for rejection by telephone.

Where a **Bid-Offer Acceptance** is not confirmed within two minutes or is rejected, **NGC** will seek to contact the **Control Point** for the **BM Unit**. **NGC** must then, within 15 minutes of issuing the **Bid-Offer Acceptance**, withdraw the **Bid-Offer Acceptance** or log the **Bid-Offer Acceptance** as confirmed. **NGC** will only log a rejected **Bid-Offer Acceptance** as confirmed following discussion and if the reason given is, in **NGC's** reasonable opinion, not acceptable and **NGC** will inform the **BM Participant** accordingly.

BC2.7.4 Action Required from **BM Participants**

(a) Each **BM Participant** in respect of its **BM Units** will comply in accordance with BC2.7.1 with all **Bid-Offer Acceptances** given by **NGC** with no more than the delay allowed for by the **Dynamic Parameters** unless the **BM Unit** has given notice to **NGC** under the provisions of BC2.7.3 regarding non-acceptance of a **Bid-Offer Acceptance**.

(b) Where a **BM Unit's** input or output changes in accordance with a **Bid-Offer Acceptance** issued under BC2.7.1, such variation does not need to be notified to **NGC** in accordance with BC2.5.1.

(c) In the event that while carrying out the **Bid-Offer Acceptance** an unforeseen problem arises caused by safety reasons (relating to personnel or plant), **NGC** must be notified immediately by telephone and this may lead to revision of **BM Unit Data** in accordance with BC2.5.3

BC2.7.5 Additional Action Required from **Generators**

(a) When complying with **Bid-Offer Acceptances** for a **CCGT Module** a **Generator** will operate its **CCGT Units** in accordance with the applicable **CCGT Module Matrix**.

(b) When complying with **Bid-Offer Acceptances** for a **CCGT Module** which is a **Range CCGT Module**, a **Generator** must operate that **CCGT Module** so that power is provided at the single **Grid Entry Point** identified in the data given pursuant to PC.A.3.2.1 or at the single **Grid Entry Point** to which **NGC** has agreed pursuant to BC1.4.2 (f).

(c) On receiving a new MW **Bid-Offer Acceptance**, no tap changing shall be carried out to change the Mvar output unless there is a new Mvar **Ancillary Service** instruction issued pursuant to BC2.8.

BC2.8 ANCILLARY SERVICES

This section primarily covers the call-off of **System Ancillary Services**. The provisions relating to **Commercial Ancillary Services** will normally be covered in the relevant **Ancillary Services Agreement**. ~~In the case of a **Cascade Hydro Scheme** instructions for **System Ancillary Services** in relation to **Generating Units** forming part of the **Cascade Hydro Scheme** will be issued in respect of the **Generating Unit** and not the **BM Unit** and the rest of BC2.8 shall be read accordingly.~~

BC2.8.1 Call-off of **Ancillary Services** by **NGC**

(a) **Ancillary Service** instructions may be issued at any time.

(b) **NGC** is entitled to assume that each **BM Unit** (or **Generating Unit**) is available in accordance with the **BM Unit Data** (or the **Generating Unit Data**) and data contained in the **Ancillary Services Agreement** unless and until it is informed of any changes.

(c) **Frequency** control instructions may be issued in conjunction with, or separate from, a **Bid-Offer Acceptance**.

(d) The form of and terms to be used by **NGC** in issuing **Ancillary Service** instructions together with their meanings are set out in Appendix 2 in the form of a non-exhaustive list of examples including **Reactive Power** and associated instructions.

(e) In the case of **Generating Units** that do not form part of a **BM Unit** any change in **Active Power** as a result of, or required to enable, the provision of an **Ancillary Service** will be dealt with as part of that **Ancillary Service Agreement** and/or the provisions under the **CUSC**.

BC2.8.2 Consistency with **Export and Import Limits, QPNs** and **Dynamic Parameters**

Ancillary Service instructions will be consistent with the **Export and Import Limits**, **QPNs**, and **Joint BM Unit Data** provided or modified under **BC1** or **BC2** and the **Dynamic Parameters** provided or modified under **BC2**. **Ancillary Service** instructions may also recognise **Other Relevant Data** provided or modified under **BC**1 or **BC2**

BC2.8.3 Rejection of **Ancillary Service** instructions

(a) **Ancillary Service** instructions may only be rejected, by automatic logging device or by telephone, on safety grounds (relating to personnel or plant) or because they are not consistent with the applicable **Export and Import Limits, QPNs, Dynamic Parameters, Joint BM Unit Data**, **Other Relevant Data** or data contained in the **Ancillary Services Agreement** and a reason must be given immediately for non-acceptance.

(b) The issue of **Ancillary Service** instructions for **Reactive Power** will be made with due regard to any resulting change in **Active Power** output. The instruction may be rejected if it conflicts with any **Bid-Offer Acceptance** issued in accordance with BC2.7 or with the **Physical Notification**.

(c) Where **Ancillary Service** instructions relating to **Active Power** and **Reactive Power** are given together, and to achieve the **Reactive Power** output would cause the **BM Unit** to operate outside **Dynamic Parameters** as a result of the **Active Power** instruction being met at the same time, then the timescale of implementation of the **Reactive Power** instruction may be extended to be no longer than the timescale for implementing the **Active Power** instruction but in any case to achieve the Mvar **Ancillary Service** instruction as soon as possible.

BC2.8.4 Action Required from **BM Units** and **Generating Units**

(a) Each **BM Unit** (or **Generating Unit**) will comply in accordance with BC2.8.1 with all **Ancillary Service** instructions relating to **Reactive Power** properly given by **NGC** within 2 minutes or such longer period as **NGC** may instruct, and all other **Ancillary Service** instructions without delay, unless the **BM Unit** or **Generating Unit** has given notice to **NGC** under the provisions of BC2.8.3 regarding non-acceptance of **Ancillary Service** instructions.

(b) Each **BM Unit** may deviate from the profile of its **Final Physical Notification Data,** as modified by any **Bid-Offer Acceptances** issued in accordance with BC2.7.1, only as a result of responding to **Frequency** deviations when operating in **Frequency Sensitive Mode** in accordance with the **Ancillary Services Agreement**.

(c) Each **Generating Unit** that does not form part of a **BM Unit** may deviate from the profile of its **Final Physical Notification Data** where agreed by **NGC** and the **User**, including but not limited to, as a result of providing an **Ancillary Service** in accordance with the **Ancillary Service Agreement**.

(~~c~~d) In the event that while carrying out the **Ancillary Service** instructions an unforeseen problem arises caused by safety reasons (relating to personnel or plant), **NGC** must be notified immediately by telephone and this may lead to revision of **BM Unit Data** or **Generating Unit Data** in accordance with BC2.5.3.

BC2.9 EMERGENCY CIRCUMSTANCES

BC2.9.1 Emergency Actions

BC2.9.1.1 In certain circumstances (as determined by **NGC** in its reasonable opinion) it will be necessary, in order to preserve the integrity of the **GB Transmission System** and any synchronously connected **External System**, for **NGC** to issue **Emergency Instructions.** In such circumstances, it may be necessary to depart from normal **Balancing Mechanism** operation in accordance with BC2.7 in issuing **Bid-Offer Acceptances**. **BM Participants** must also comply with the requirements of **BC3**.

BC2.9.1.2 Examples of circumstances that may require the issue of **Emergency Instructions** include:-

(a) **Events** on the **GB Transmission System** or the **System** of another **User**; or

(b) the need to maintain adequate **System** and **Localised NRAPM** in accordance with BC2.9.4 below; or

(c) the need to maintain adequate frequency sensitive **Generating Units** (as defined in the Glossary and Definitions and not limited by BC2.2) in accordance with BC2.9.5 below; or

(d) the need to implement **Demand Control** in accordance with OC6; or

(e) (i) the need to invoke the **Black Start** process or the **Re-Synchronisation of De-Synchronised Island** process in accordance with OC9; or

(ii) the need to request provision of a **Maximum Generation Service**.

BC2.9.1.3 In the case of **BM Units** and **Generating Units** in **Great Britain**, **Emergency Instructions** will be issued by **NGC** direct to the **User** at the **Control Point** for the **BM Unit** or **Generating Unit** and may require an action or response which is outside its **Other Relevant Data**, **QPN**s, or **Export and Import Limits** submitted under **BC1,** or revised under **BC1** or **BC2**, or **Dynamic Parameters** submitted or revised under **BC2**.

BC2.9.1.4 In the case of a **Network Operator** or an **Externally Interconnected System Operator**, **Emergency Instructions** will be issued to its **Control Centre.**

BC2.9.2 Implementation of **Emergency Instructions**

BC2.9.2.1 **Users** will respond to **Emergency Instructions** issued by **NGC** without delay and using all reasonable endeavours to so respond. **Emergency Instructions** may only be rejected by an **User** on safety grounds (relating to personnel or plant) and this must be notified to **NGC** immediately by telephone.

BC2.9.2.2 **Emergency Instructions** will always be prefixed with the words "This is an **Emergency Instruction**" except in the case of **Maximum Generation Service** instructed by electronic data communication facilities where the instruction will be issued in accordance with the provisions of the **Maximum Generation Service Agreement**.

BC2.9.2.3 In all cases under this BC2.9 except BC2.9.1.2 (e) where **NGC** issues an **Emergency Instruction** to a **BM Participant** which is not rejected under BC2.9.2.1, the **Emergency Instruction** shall be treated as a **Bid-Offer Acceptance**. For the avoidance of doubt, any **Emergency Instruction** issued to a **Network Operator** or to an **Externally Interconnected System Operator** or in respect of a **Generating Unit** that does not form part of a **BM Unit**, will not be treated as a **Bid-Offer Acceptance**.

BC2.9.2.4 In the case of BC2.9.1.2 (e) (ii) where **NGC** issues an **Emergency Instruction** pursuant to a **Maximum Generation Service Agreement** payment will be dealt with in accordance with the **CUSC** and the **Maximum Generation Service Agreement**.

BC2.9.3 Examples of **Emergency Instructions**

BC2.9.3.1 In the case of a **BM Unit** or a **Generating Unit**, **Emergency Instructions** may include an instruction for the **BM Unit** or the **Generating Unit** to operate in a way that is not consistent with the **Dynamic Parameters**, **QPNs** and/or **Export and Import Limits**.

BC2.9.3.2 In the case of a **Generator, Emergency Instructions** may include**:**

(a) an instruction to trip one or more **Gensets;** or

(b) an instruction to trip **Mills** or to **Part Load** a **Generating Unit**~~; or~~ (as defined in the Glossary and Definitions and not limited by BC2.2); or

(c) an instruction to **Part Load** a **CCGT Module**; or

(d) an instruction for the operation of **CCGT Units** within a **CCGT Module** (on the basis of the information contained within the **CCGT Module Matrix**) when emergency circumstances prevail (as determined by **NGC** in **NGC's** reasonable opinion); or

(e) an instruction to generate outside normal parameters, as allowed for in 4.2 of the **CUSC**; or

(f) an instruction for the operation of **Generating Units** within a **Cascade Hydro Scheme** (on the basis of the additional information supplied in relation to individual **Generating Units**) when emergency circumstances prevail (as determined by **NGC** in **NGC's** reasonable opinion).

BC2.9.3.3 Instructions to **Network Operators** relating to the **Operational Day** may include:

(a) a requirement for **Demand** reduction and disconnection or restoration pursuant to **OC6**;

(b) an instruction to effect a load transfer between **Grid Supply Points**;

(c) an instruction to switch in a **System to Demand Intertrip Scheme**;

(d) an instruction to split a network;

(e) an instruction to disconnect an item of **Plant** or **Apparatus** from the **System**.

BC2.9.4 Maintaining adequate **System** and **Localised NRAPM (Negative Reserve Active Power Margin)**

BC2.9.4.1 Where **NGC** is unable to satisfy the required **System NRAPM** or **Localised NRAPM** by following the process described in BC1.5.5, **NGC** will issue an **Emergency Instruction** to exporting **BM Units** for **De-Synchronising** on the basis of **Bid-Offer Data** submitted to **NGC** in accordance with BC1.4.2(d).

BC2.9.4.2 In the event that **NGC** is unable to differentiate between exporting **BM Units** or **Generating Unit** according to **Bid-Offer Data** (if applicable), **NGC** will instruct a **BM Participant** to **Shutdown** a specified exporting **BM Unit** or **Generating Unit** for such period based upon the following factors:

(a) effect on power flows (resulting in the minimisation of transmission losses);

(b) reserve capability;

(c) **Reactive Power** worth;

(d) **Dynamic Parameters**;

(e) in the case of **Localised NRAPM**, effectiveness of output reduction in the management of the **System Constraint**.

BC2.9.4.3 Where **NGC** is still unable to differentiate between exporting **BM Units**, having considered all the foregoing, **NGC** will decide which exporting **BM Unit** and/or **Generating Unit** to **Shutdown** by the application of a quota for each **BM Participant** in the ratio of each **BM Participant's Physical Notifications**.

BC2.9.4.4 Other than as provided in BC2.9.4.5 and BC2.9.4.6 below, in determining which exporting **BM Units** to **De-Synchronise** under this BC2.9.4, **NGC** shall not consider in such determination (and accordingly shall not instruct to **De-Synchronise**) any **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) within an **Existing Gas Cooled Reactor Plant**.

BC2.9.4.5 **NGC** shall be permitted to instruct a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) within an **Existing AGR Plant** to **De-Synchronise** if the relevant **Generating Unit** within the **Existing AGR Plant** has failed to offer to be flexible for the relevant instance at the request of **NGC** within the **Existing AGR Plant Flexibility Limit.**

BC2.9.4.6 Notwithstanding the provisions of BC2.9.4.5 above, if the level of **System NRAPM** (taken together with **System** constraints) or **Localised NRAPM** is such that it is not possible to avoid instructing a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) within an **Existing Magnox Reactor Plant** and/or an **Existing AGR Plant** whether or not it has met requests within the **Existing AGR Flexibility Limit** to **De-Synchronise NGC** may, provided the power flow across each **External Interconnection** is either at zero or results in an export of power from the **Total System**, so instruct a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) within an **Existing Magnox Reactor Plant** and/or an **Existing AGR Plant** to **De-Synchronise** in the case of **System NRAPM**, in all cases and in the case of **Localised NRAPM**, when the power flow would have a relevant effect.

BC2.9.4.7 When instructing exporting **BM Units** or **Generating Units** which form part of an **On-Site Generator Site** to reduce generation under this BC2.9.4, **NGC** will not issue an instruction which would reduce generation below the reasonably anticipated **Demand** of the **On-Site Generator Site**. For the avoidance of doubt, it should be noted that the term **"On-Site Generator Site"** only relates to Trading Units which have fulfilled the Class 1 or Class 2 requirements.

BC2.9.5 Maintaining adequate Frequency Sensitive ~~**Generating Units**~~Generation

BC2.9.5.1 If, post **Gate Closure, NGC** determines, in its reasonable opinion, from the information then available to it (including information relating to **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) breakdown) that the number of and level of **Primary, Secondary** and **High Frequency Response** available from **Gensets** (other than those units within **Existing Gas Cooled Reactor Plant**, which are permitted to operate in **Limited Frequency Sensitive Mode** at all times under BC3.5.3) available to operate in **Frequency Sensitive Mode** is such that it is not possible to avoid **De-Synchronising Existing Gas Cooled Reactor Plant** then provided that:

(a) there are (or, as the case may be, that **NGC** anticipates, in its reasonable opinion, that at the time that the instruction is to take effect there will be) no other **Gensets** generating and exporting on to the **Total System** which are not operating in **Frequency Sensitive Mode** (or which are operating with only a nominal amount in terms of level and duration) (unless, in **NGC's** reasonable opinion, necessary to assist the relief of **System** constraints or necessary as a result of other **System** conditions); and

(b) the power flow across each **External Interconnection** is (or, as the case may be, is anticipated to be at the time that the instruction is to take effect) either at zero or result in an export of power from the **Total System**,

then **NGC** may instruct such of the **Existing Gas Cooled Reactor Plant** to **De-Synchronise** as it is, in **NGC's** reasonable opinion, necessary to **De-Synchronise** and for the period for which the **De-Synchronising** is, in **NGC's** reasonable opinion, necessary.

BC2.9.5.2 If in **NGC's** reasonable opinion it is necessary for both the procedure in BC2.9.4 and that set out in BC2.9.5.1 to be followed in any given situation, the procedure in BC2.9.4 will be followed first, and then the procedure set out in BC2.9.5.1. For the avoidance of doubt, nothing in this sub-paragraph shall prevent either procedure from being followed separately and independently of the other.

BC2.9.6 Emergency Assistance to and from **External Systems**

(a) An **Externally Interconnected System Operator** (in its role as operator of the **External System**) may request that **NGC** takes any available action to increase the **Active Energy** transferred into its **External System**, or reduce the **Active Energy** transferred into the **GB Transmission System** by way of emergency assistance if the alternative is to instruct a demand reduction on all or part of its **External System** (or on the system of an **Interconnector User** using its **External System**). Such request must be met by **NGC** providing this does not require a reduction of **Demand** on the **GB Transmission System**, or lead to a reduction in security on the **GB Transmission System**.

(b) **NGC** may request that an **Externally Interconnected System Operator** takes any available action to increase the **Active Energy** transferred into the **GB Transmission System**, or reduce the **Active Energy** transferred into its **External System** by way of emergency assistance if the alternative is to instruct a **Demand** reduction on all or part of the **GB Transmission System**. Such request must be met by the **Externally Interconnected System Operator** providing this does not require a reduction of **Demand** on its **External System** (or on the system of **Interconnector Users** using its **External System)**, or lead to a reduction in security on such **External System** or system.

BC2.9.7 Unplanned outages of electronic communication and computing facilities

BC2.9.7.1 In the event of an unplanned outage of the electronic data communication facilities or of **NGC**'s associated computing facilities or in the event of a **Planned Maintenance Outage** lasting longer than the planned duration, in relation to a post-**Gate Closure** period **NGC** will, as soon as it is reasonably able to do so, issue a NGC Computing System Failure notification by telephone or such other means agreed between **Users** and **NGC** indicating the likely duration of the outage.

BC2.9.7.2 During the period of any such outage, the following provisions will apply:

(a) **NGC** will issue further **NGC** Computing System Failure notifications by telephone or such other means agreed between **Users** and **NGC** to all **BM Participants** to provide updates on the likely duration of the outage;

(b) **BM Participants** should operate in relation to any period of time in accordance with the **Physical Notification** prevailing at **Gate Closure** current at the time of the computer system failure in relation to each such period of time. Such operation shall be subject to the provisions of BC2.5.1, which will

apply as if set out in this BC2.9.7.2. No further submissions of **BM Unit Data** or **Generating Unit Data** (other than data specified in BC1.4.2(c) (**Export and Import Limits**) and BC1.4.2(e) (**Dynamic Parameters**) should be attempted. Plant failure or similar problems causing significant deviation from **Physical Notification** should be notified to **NGC** by telephone by the submission of a revision to **Export and Import Limits** in relation to the **BM Unit** or **Generating Unit Data** so affected;

(c) Revisions to **Export and Import Limits** and to **Dynamic Parameters** should be notified to **NGC** by telephone and will be recorded for subsequent use;

(d) **NGC** will issue **Bid-Offer Acceptances** by telephone which will be recorded for subsequent use;

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

BC2.9.7.3 **NGC** will advise **BM Participants** of the withdrawal of the NGC Computing System Failure notification following the re-establishment of the communication facilities.

BC2.10 OTHER OPERATIONAL INSTRUCTIONS AND NOTIFICATIONS

BC2.10.1 **NGC** may, from time to time, need to issue other instructions or notifications associated with the operation of the **GB Transmission System**.

BC2.10.2 Such instructions or notifications may include**:**

Intertrips

(a) an instruction to switch into or out of service an **Operational Intertripping** scheme;

Tap Positions

(b) a request for a **Genset** step-up transformer tap position (for security assessment);

Tests

(c) an instruction to carry out tests as required under **OC5**, which may include the issue of an instruction regarding the operation of **CCGT Units** within a **CCGT Module** at a **Large Power Station;**

Future **BM Unit** Requirements

(d) a reference to any implications for future **BM Unit** requirements and the security of the **GB Transmission System**, including arrangements for change in output to meet post fault security requirements;

(e) Changes to **Target Frequency**
a notification of a change in **Target Frequency**, which will normally only be 49.95, 50.00, or 50.05Hz but in exceptional circumstances as determined by **NGC** in its reasonable opinion, may be 49.90 or 50.10Hz.

BC2.10.3 Where an instruction or notification under BC2.10.2 (a), (c) or (d) results in a change to the input or output level of the **BM Unit** then **NGC** shall issue a **Bid-Offer Acceptance** or **Emergency Instruction** as appropriate.

BC2.11 LIAISON WITH **GENERATORS** FOR RISK OF TRIP AND **AVR** TESTING

BC2.11.1 A **Generator** at the **Control Point** for any of its **Large Power Stations** may request **NGC's** agreement for one of the **Gensets** at that **Power Station** to be operated under a risk of trip. **NGC's** agreement will be dependent on the risk to the **GB Transmission System** that a trip of the **Genset** would constitute.

BC2.11.2 (a) Each **Generator** at the **Control Point** for any of its **Large Power Stations** will operate its **Synchronised Gensets** with:

(i) **AVRs** in constant terminal voltage mode with VAR limiters in service at all times. **AVR** constant **Reactive Power** or power factor mode should, if installed, be disabled; and

(ii) its generator step-up transformer tap changer selected to manual mode,

unless released from this obligation in respect of a particular **Genset** by **NGC**.

(b) Where a power system stabiliser is fitted as part of an excitation system of a **Genset**, it requires on-load commissioning which must be witnessed by **NGC**. Only when the performance of the power system stabiliser has been approved by **NGC** shall it be switched into service by a **Generator** and then it will be kept in service at all times unless otherwise agreed with **NGC**. Further reference is made to this in CC.6.3.8.

BC2.11.3 A **Generator** at the **Control Point** for any of its **Power Stations** may request **NGC's** agreement for one of its **Gensets** at that **Power Station** to be operated with the **AVR** in manual mode, or power system stabiliser switched out, or VAR limiter switched out. **NGC's** agreement will be dependent on the risk that would be imposed on the **GB Transmission System** and any **User System**. Provided that in any event a **Generator** may take such action as is reasonably necessary on safety grounds (relating to personnel or plant) .

BC2.12 LIAISON WITH **EXTERNALLY INTERCONNECTED SYSTEM OPERATORS**

BC2.12.1 Co-ordination role of **Externally Interconnected System Operators**

(a) The **Externally Interconnected System Operator** will act as the **Control Point** for **Bid-Offer Acceptances** on behalf of **Interconnector Users** and will co-ordinate instructions relating to **Ancillary Services** and **Emergency Instructions** on behalf of **Interconnector Users** using its **External System** in respect of each **Interconnector User's BM Units**.

(b) **NGC** will issue **Bid-Offer Acceptances** and instructions for **Ancillary Services** relating to **Interconnector Users' BM Units** to each **Externally Interconnected System Operator** in respect of each **Interconnector User** using its **External System**.

(c) If, as a result of a reduction in the capability (in MW) of the **External Interconnection**, the total of the **Physical Notifications** and **Bid-Offer Acceptances** issued for 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. The **Externally Interconnected System Operator** should seek a revision of **Export and Import Limits** from one or more of its **Interconnector Users** for the remainder of the **Balancing Mechanism** period during which **Physical Notifications** cannot be revised.

Appendix 1 – Form of **Bid-Offer Acceptances**

BC2.A.1.1 This Appendix describes the forms of **Bid-Offer Acceptances**. As described in BC2.6.1 **Bid-Offer Acceptances** are normally given by an automatic logging device, but in the event of failure of the logging device, **Bid-Offer Acceptances** will be given by telephone.

BC2.A.1.2 For each **BM Unit** the **Bid-Offer Acceptance** will consist of a series of MW figures and associated times.

BC2.A.1.3 The **Bid-Offer Acceptances** relating to **CCGT Modules** will assume that the **CCGT Units** within the **CCGT Module** will operate in accordance with the **CCGT Module Matrix**, as required by **BC1**. The **Bid-Offer Acceptances** relating to **Cascade Hydro Schemes** will assume that the **Generating Unit** forming part of the **Cascade Hydro Scheme** will operate, where submitted, in accordance with the **Cascade Hydro Scheme Matrix** submitted under **BC1**.

BC2.A.1.4 **BID-OFFER ACCEPTANCES** GIVEN BY AUTOMATIC LOGGING DEVICE.

(a) The complete form of the **Bid-Offer Acceptance** is given in the EDL Message Interface Specification which can be made available to **Users** on request.

(b) **Bid-Offer Acceptances** will normally follow the form:

(i) **BM Unit** Name
(ii) Instruction Reference Number
(iii) Time of instruction
(iv) Type of instruction
(v) **BM Unit Bid-Offer Acceptance** number
(vi) Number of MW/Time points making up instruction (minimum 2, maximum 5)
(vii) MW value and Time value for each point identified in (vi)

The times required in the instruction are input and displayed in London time, but communicated electronically in GMT.

BC2.A.1.5 **BID-OFFER ACCEPTANCES** GIVEN BY TELEPHONE

(a) All run-up/run-down rates will be assumed to be constant and consistent with **Dynamic Parameters**. Each **Bid-Offer Acceptance** will, wherever possible, be kept simple, drawing as necessary from the following forms and BC2.7

(b) **Bid-Offer Acceptances** given by telephone will normally follow the form:

(i) an exchange of operator names;
(ii) **BM Unit** Name;
(iii) Time of instruction;
(iv) Type of instruction;
(v) Number of MW/Time points making up instruction (minimum 2, maximum 5)
(vi) MW value and Time value for each point identified in (v)

The times required in the instruction are expressed in London time.

For example, for a BM Unit ABCD-1 acceptance logged with a start time at 1400 hours and with a FPN at 300MW:

"BM Unit ABCD-1 Bid-Offer Acceptance timed at 1400 hours. Acceptance consists of 4 MW/Time points as follows:

300MW at 1400 hours
400MW at 1415 hours
400MW at 1450 hours
300MW at 1500 hours"

BC2.A.1.6 SUBMISSION OF **BID-OFFER ACCEPTANCE** DATA TO THE **BMRA**

The relevant information contained in **Bid-Offer Acceptances** issued by **NGC** will be converted into "from" and "to" MW levels and times before they are submitted to the **BMRA** by **NGC.**

Appendix 2 - Type and Form of **Ancillary Service** Instructions

BC2.A.2.1 This part of the Appendix consists of a non-exhaustive list of the forms and types of instruction for a **Genset** to provide **System Ancillary Services.** There may be other types of **Commercial Ancillary Services** and these will be covered in the relevant **Ancillary Services Agreement**. In respect of the provision of **Ancillary Services** by **Generating Units** the forms and types of instruction will be in the form of this Appendix 2 unless amended in the **Ancillary Services Agreement**.

As described in CC.8, **System Ancillary Services** consist of Part 1 and Part 2 **System Ancillary Services.**

Part 1 System Ancillary Services comprise:

(a) **Reactive Power** supplied other than by means of synchronous or static compensators. This is required to ensure that a satisfactory **System** voltage profile is maintained and that sufficient **Reactive Power** reserves are maintained under normal and fault conditions. **Ancillary Service** instructions in relation to **Reactive Power** may include:

(i) Mvar Output
(ii) Target Voltage Levels
(iii) Tap Changes
(iv) Maximum Mvar Output ('maximum excitation')
(v) Maximum Mvar Absorption ('minimum excitation')

(b) **Frequency** Control by means **of Frequency** sensitive generation. **Gensets** may be required to move to or from **Frequency Sensitive Mode** in the combinations agreed in the relevant **Ancillary Services Agreement**. They will be specifically requested to operate so as to provide **Primary Response** and/or **Secondary Response** and/or **High Frequency Response**.

Part 2 System Ancillary Services comprise:

(c) **Frequency** Control by means of **Fast Start.**

(d) **Black Start Capability**

BC2.A.2.2 As **Ancillary Service** instructions are not part of **Bid-Offer Acceptances** they do not need to be closed instructions and can cover any period of time, not just limited to the period of the **Balancing Mechanism**.

BC2.A.2.3 As described in BC2.6.1 **Ancillary Service** instructions are normally given by automatic logging device, but in the absence of, or in the event of failure of the logging device, instructions will be given by telephone.

BC2.A.2.4 INSTRUCTIONS GIVEN BY AUTOMATIC LOGGING DEVICE.

(a) The complete form of the **Ancillary Service** instruction is given in the EDL Message Interface Specification which is available to **Users** on request from **NGC**.

(b) **Ancillary Service** instructions for **Frequency** Control will normally follow the form:

(i) **BM Unit** Name
(ii) Instruction Reference Number

(iii) Time of instruction
(iv) Type of instruction (REAS)
(v) Reason Code
(vi) Start Time

(c) **Ancillary Service** instructions for **Reactive Power** will normally follow the form:

(i) **BM Unit** Name
(ii) Instruction Reference Number
(iii) Time of instruction
(iv) Type of instruction (MVAR, VOLT or TAPP)
(v) Target Value
(vi) Target Time

The times required in the instruction are input and displayed in London time, but communicated electronically in GMT.

BC2.A.2.5 INSTRUCTIONS GIVEN BY TELEPHONE

(a) **Ancillary Service** instructions for **Frequency** Control will normally follow the form:

(i) an exchange of operator names;
(ii) **BM Unit** Name;
(iii) Time of instruction;
(iv) Type of instruction;
(v) Start Time.

The times required in the instruction are expressed in London time.

For example, for **BM Unit** ABCD-1 instructed at 1400 hours to provide Primary and **High Frequency** response starting at 1415 hours:

"**BM Unit** ABCD-1 message timed at 1400 hours. Unit to **Primary and High Frequency Response** at 1415 hours"

(b) **Ancillary Service** instructions for **Reactive Power** will normally follow the form:

(i) an exchange of operator names;
(ii) **BM Unit** Name;
(iii) Time of instruction;
(iv) Type of instruction (MVAR, VOLT or TAPP)
(v) Target Value
(vi) Target Time.

The times required in the instruction are expressed as London time.

For example, for **BM Unit** ABCD-1 instructed at 1400 hours to provide 100Mvar by 1415 hours:

"**BM Unit** ABCD-1 message timed at 1400 hours. MVAR instruction. Unit to plus 100 Mvar target time 1415 hours."

BC2.A.2.6 **Reactive Power**

As described in BC2.A.2.4 and BC2.A.2.5 instructions for **Ancillary Services** relating to **Reactive Power** may consist of any of several specific types of instruction. The following table describes these instructions in more detail:

Instruction Name	Description	Type of Instruction
Mvar Output	The individual Mvar output from the **Genset** onto the **GB Transmission System** at the **Grid Entry Point** (or onto the **User System** at the **User System Entry Point** in the case of **Embedded Power Stations**), namely on the higher voltage side of the generator step-up transformer. In relation to each **Genset**, where there is no HV indication, **NGC** and the **Generator** will discuss and agree equivalent Mvar levels for the corresponding LV indication. Where a **Genset** is instructed to a specific Mvar output, the **Generator** must achieve that output within a tolerance of +/-25 Mvar (for **Gensets** in England and Wales) or the lesser of +/-5% of rated output or 25Mvar (for **Gensets** in Scotland) (or such other figure as may be agreed with **NGC**) by tap changing on the generator step-up transformer, unless agreed otherwise. Once this has been achieved, the **Generator** will not tap again without prior consultation with and the agreement of **NGC**, on the basis that Mvar output will be allowed to vary with **System** conditions.	MVAR
Target Voltage Levels	Target voltage levels to be achieved by the **Genset** on the **GB Transmission System** at the **Grid Entry Point** (or on the **User System** at the **User System Entry Point** in the case of **Embedded Power Stations**, namely on the higher voltage side of the generator step-up transformer. Where a **Genset** is instructed to a specific target voltage, the **Generator** must achieve that target within a tolerance of ±1 kV (or such other figure as may be agreed with **NGC**) by tap changing on the generator step-up transformer, unless agreed otherwise with **NGC**. In relation to each **Genset**, where there is no HV indication, **NGC** and the **Generator** will discuss and agree equivalent voltage levels for the corresponding LV indication. Under normal operating conditions, once this target voltage level has been achieved the **Generator** will not tap again without prior consultation with, and with the agreement of, **NGC**. However, under certain circumstances the **Generator** may be instructed to maintain a target voltage until otherwise instructed and this will be achieved by tap changing on the generator step-up transformer without reference to **NGC**.	VOLT
Tap Changes	Details of the required generator step-up transformer tap changes in relation to a **Genset**. The instruction for tap changes may be a **Simultaneous Tap Change** instruction, whereby the tap change must be effected by the **Generator** in response to an instruction from **NGC** issued simultaneously to relevant **Power Stations**. The instruction, which is normally preceded by advance notice, must be	TAPP

Instruction Name	Description	Type of Instruction
	effected as soon as possible, and in any event within one minute of receipt from **NGC** of the instruction. For a **Simultaneous Tap Change,** change **Genset** generator step-up transformer tap position by one [two] taps to raise or lower (as relevant) **System** voltage, to be executed at time of instruction.	
Maximum Mvar Output (“maximum excitation”)	Under certain conditions, such as low **System** voltage, an instruction to maximum Mvar output at instructed MW output ("maximum excitation") may be given, and a **Generator** should take appropriate actions to maximise Mvar output unless constrained by plant operational limits or safety grounds (relating to personnel or plant).	
Maximum Mvar Absorption ("minimum excitation")	Under certain conditions, such as high **System** voltage, an instruction to maximum Mvar absorption at instructed MW output ("minimum excitation") may be given, and a **Generator** should take appropriate actions to maximise Mvar absorption unless constrained by plant operational limits or safety grounds (relating to personnel or plant).	

BC2.A.2.7 In addition, the following provisions will apply to **Reactive Power** instructions:

(a) In circumstances where **NGC** issues new instructions in relation to more than one **BM Unit** at the same **Power Station** at the same time tapping will be carried out by the **Generator** one tap at a time either alternately between (or in sequential order, if more than two), or at the same time on, each **BM Unit**.

(b) Where the instructions require more than two taps per **BM Unit** and that means that the instructions cannot be achieved within 2 minutes of the instruction time (or such longer period at **NGC** may have instructed), the instructions must each be achieved with the minimum of delay after the expiry of that period.

(c) It should be noted that should **System** conditions require, **NGC** may need to instruct maximum Mvar output to be achieved as soon as possible, but (subject to the provisions of paragraph (BC2.A.2.7(b) above) in any event no later than 2 minutes after the instruction is issued.

(d) An **Ancillary Service** instruction relating to **Reactive Power** may be given in respect of **CCGT Units** within a **CCGT Module** at a **Power Station** where running arrangements and/or **System** conditions require, in both cases where exceptional circumstances apply and connection arrangements permit.

(e) In relation to Mvar matters, Mvar generation/output is an export onto the **System** and is referred to as "lagging Mvar", and Mvar absorption is an import from the **System** and is referred to as "leading Mvar".

(f) It should be noted that the excitation control system constant **Reactive Power** output control mode or constant power factor output control mode will always be disabled, unless agreed otherwise with **NGC**.

Appendix 3 – Submission of Revised Mvar Capability

BC2.A.3.1 For the purpose of submitting revised Mvar data the following terms shall apply:

Full Output	The MW output of a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) measured at the generator stator terminals representing the LV equivalent of the **Registered Capacity** at the **Grid Entry Point**.
Minimum Output	The MW output of a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC2.2) measured at the generator stator terminals representing the LV equivalent of the **Minimum Generation** at the **Grid Entry Point**.

BC2.A.3.2 The following provisions apply to faxed submission of revised Mvar data:

(a) The fax must be transmitted to **NGC** (to the relevant location in accordance with GC6) and must contain all the sections from the relevant part of Annexures 1 and 2 but with only the data changes set out. The "notification time" must be completed to refer to the time of transmission, where the time is expressed as London time.

(b) Upon receipt of the fax, **NGC** will acknowledge receipt by sending a fax back to the **User**. The acknowledgement will either state that the fax has been received and is legible or will state that it (or part of it) is not legible and will request re-transmission of the whole (or part) of the fax.

(c) Upon receipt of the acknowledging fax the **User** will, if requested, re-transmit the whole or the relevant part of the fax.

(d) The provisions of paragraphs (b) and (c) then apply to that re-transmitted fax.

APPENDIX 3 - ANNEXURE 1

Optional Logo

Company name REVISED Mvar DATA

TO: NGC Transmission Control Centre Fax telephone No.

Number of pages inc. header:.....

Sent By : .....

Return Acknowledgement Fax to .....

For Retransmission or Clarification ring.....

Acknowledged by **NGC**: (Signature)

.....

Acknowledgement time and date .....

Legibility of FAX :	Acceptable	
Unacceptable (List pages if appropriate)		(Resend FAX)

APPENDIX 3 - ANNEXURE 2

To: NGC Transmission Control Centre

From : [*Company Name & Location*]

REVISED Mvar DATA

NOTIFICATION TIME:

HRS MINS DD MM YY
. / /

GENERATING UNIT*	

Start Time/Date (if not effective immediately)

REACTIVE POWER CAPABILITY AT GENERATOR STATOR TERMINAL (at rated terminal volts)

	MW	LEAD (Mvar)	LAG (Mvar)
AT **RATED MW**			
AT FULL OUTPUT (MW)			
AT MINIMUM OUTPUT (MW)			

GENERATING UNIT STEP-UP TRANSFORMER DATA

TAP CHANGE RANGE (+%,-%)	TAP NUMBER RANGE

OPTIONAL INFORMATION (for Ancillary Services use only) **-**
REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY (at rated stator terminal and nominal system volts)

	LEAD (Mvar)	LAG (Mvar)
AT **RATED MW**		

Predicted End Time/Date (to be confirmed by redeclaration)

Redeclaration made by (Signature) _____

Generating Unit has the meaning given in the Glossary and Definitions and is not limited by BC2.2.

* For a CCGT, the redeclaration is for an individual CCGT unit and not the entire module.

< End of BC2 >