BALANCING CODE NO. 2
(BC2)

POST GATE CLOSURE PROCESS

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BC2.1 INTRODUCTION

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

(a) the physical operation of **BM Units** and **Generating Units** (which could be part of a **Power Generating Module**) in the absence of any instructions from **The Company**;

(b) the acceptance by **The Company** of **Balancing Mechanism** Bids and Offers,

(c) the calling off by **The Company** of **Ancillary Services**;

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

(e) the issuing by **The Company** of other operational instructions and notifications.

In addition, **BC2** deals with any information exchange between **The Company** 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** (which could be part of a **Power Generating Module**) 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 **The Company** as far as possible to maintain the integrity of the **National Electricity Transmission System** together with the security and quality of supply.

Where reference is made in this **BC2** to **Power Generating Modules** or **Generating Units** (unless otherwise stated) it only applies:

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

(b) at an **Embedded Exemptable Large Power Station** where the relevant **Bilateral Agreement** specifies that compliance with **BC2** is required:

(i) to each **Generating Unit** which could be part of a **Synchronous Power Generating Module**, or

(ii) to each **Power Park Module** where the **Power Station** comprises **Power Park Modules**.

BC2.3 SCOPE

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

(a) **BM Participants**;

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

(c) **Network Operators**.

BC2.4 INFORMATION USED

BC2.4.1 The information which **The Company** 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 **The Company** may need to issue

will be:

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

(b) **Export and Import Limits** 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, **The Company** 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 **The Company**, and will reflect any **Demand Control** which has also been so notified. **The Company** may issue new or revised **National Electricity Transmission System Warnings – Electricity Margin Notice** 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**, except where a **BM Unit** is affected by a Stage 2 or higher **Network Gas Supply Emergency** load shedding event. **Physical Notifications** shall be prepared in accordance with **Good Industry Practice**.

In the case where a **BM Unit** is affected by a **Network Gas Supply Emergency** load shedding event, once Stage 2 or higher has been declared, then their **Physical Notifications** shall represent the **User**'s best estimate of the contracted power position of the affected **BM Unit** at the time of the event, taking into account any mitigating actions to reduce the difference between the contracted power position and the volume to be shed.

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**, except where the generation output of a **BM Unit** for an affected site only is reduced as a result of a Stage 2 or higher **Network Gas Supply Emergency** load shedding event , (and each of its **Generating Units** follows the **Physical Notification** in the case of **Physical Notifications** supplied under BC1.4.2(a)(2)) that is 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 variations arising from:

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

(b) instructions by **The Company** in relation to that **BM Unit** (or a **Generating Unit**) which require, or compliance with which would result in, a variation in output or input of that **BM Unit** (or a **Generating Unit**); or

(c) compliance with provisions of **BC1**, **BC2** or **BC3** which provide to the contrary.

Except where variations from the **Physical Notification** arise from matters referred to at (a), (b) or (c) above, in respect only of **BM Units** (or **Generating Units**) powered by an **Intermittent Power Source**, where there is a change in the level of the **Intermittent Power Source** from that forecast and used to derive the **Physical Notification**, variations from the **Physical Notification** prevailing at **Gate Closure** may, subject to remaining within the **Registered Capacity**, occur providing that the **Physical Notification** prevailing at **Gate Closure** was prepared in accordance with **Good Industry Practice**.

If variations and/or instructions as described in (a),(b) or (c) apply in any instance to **BM Units** (or **Generating Units**) powered by an **Intermittent Power Source** (e.g. a **Bid Offer Acceptance** is issued in respect of such a **BM Unit** and confirmed by the **BM Participant**) then such provisions will take priority over the third paragraph of BC2.5.1 above such that the **BM Participant** must ensure that the **Physical Notification** as varied in accordance with (a), (b) or (c) above applies and must be followed, subject to this not being prevented as a result of an unavoidance event as described below.

For the avoidance of doubt, this gives rise to an obligation on each **BM Participant** (applying **Good Industry Practice**) to ensure that each of its **BM Units** (and **Generating Units**), follows the **Physical Notifications** prevailing at **Gate Closure** 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 a **Generating Unit**) which requires a variation in output or input of that **BM Unit** (or 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 in output of **Active Power**.

Any anticipated variations in input or output post **Gate Closure** from the **Physical Notification** for a **BM Unit** (or a **Generating Unit**) prevailing at **Gate Closure** (except for those arising from instructions as outlined in (a), (b) or (c) above) must be notified to **The Company** without delay by the relevant **BM Participant** (or the relevant person on its behalf). For the avoidance of doubt, where a change in the level of the **Intermittent Power Source** from that forecast and used to derive the **Physical Notification** results in the **Shutdown** or **Shutdown** of part of the **BM Unit** (or **Generating Unit**), the change must be notified to **The Company** 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 **The Company** 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 **The Company** 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 a **Generating Unit**) is to be **Synchronised** or **De-Synchronised** unless:-

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

(b) **The Company** has issued a **Bid-Offer Acceptance** requiring **Synchronisation** or **De-Synchronisation** of that **BM Unit** (or a **Generating Unit**).

BC2.5.2.3 **BM Participants** must only **Synchronise** or **De-Synchronise BM Units** (or a **Generating Unit**);

(a) at the times indicated to **The Company**, 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 **Operational Intertripping** or **Low Frequency Relay** operations or an **Ancillary Service** pursuant to an **Ancillary Services Agreement**

BC2.5.2.4 **De-Synchronisation** may also take place without prior notification to **The Company** as a result of plant breakdowns or if it is done purely on safety grounds (relating to personnel or plant). If that happens, **The Company** 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 a **Generating Unit**) is to take place without **The Company'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 **The Company** (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 **The Company** (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 **The Company's** agreement.

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

BC2.5.2.5 Notification Of Times To Network Operators

The Company 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 **National Electricity Transmission System** which **The Company** has identified under **OC2** and/or **BC1** as being those which may, in the reasonable opinion of **The Company**, 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 **The Company** 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** or to **Bid-Offer Data** for that **Settlement Period** may be submitted to **The Company**.

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 **The Company** 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 **The Company** (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 **The Company**. For the avoidance of doubt, the **Dynamic Parameters** submitted to **The Company** 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**.

Following the **Operational Intertripping** of a **System** to **Generating Unit** or a **System** to **CCGT Module** and/or a **System** to **Power Generating Module**, the **BM Participant** shall as soon as reasonably practicable re-declare its MEL to reflect more accurately its output capability.

BC2.5.3.2 Revisions to **Export and Import Limits** or **Other Relevant Data** supplied (or revised) under **BC1** must be notified to **The Company** 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 a **Generating Unit**) to ensure that an accurate assessment of **BM Unit** (or a **Generating Unit**) capability is available to **The Company** 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 a **Generating Unit**) in the circumstances described in BC2.5.2.4 if the **BM Unit** (or 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 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 **The Company** via the **Control Point** of a revision to the **Export and Import Limits**, if appropriate, of the **BM Unit** (or 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 a **Generating Unit**) is returned to its **Physical Notification** is not to exceed the limits specified in **BC1**, Appendix 1 without **The Company's** agreement.

BC2.5.4 <u>Operation in the Absence of Instructions from The Company</u>

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) (i) in the absence of any MVAr **Ancillary Service** instructions, the MVAr output of each **Synchronised Genset** located **Onshore** should be 0 MVAr upon **Synchronisation** at the circuit-breaker where the **Genset** is **Synchronised**. For the avoidance of doubt, in the case of a **Genset** located **Onshore** comprising of **Non-Synchronous Generating Units**, **Power Park Modules**, **HVDC Systems** or **DC Converters**, the steady state tolerance allowed in CC.6.3.2(b) or ECC.6.3.2.4.4 may be applied;

(ii) In the absence of any MVAr **Ancillary Service** instructions, the MVAr output of each **Synchronised Genset** comprising **Synchronous Generating Units** located **Offshore** (which could be part of a **Synchronous Power Generating Module**) should be 0MVAr at the **Grid Entry Point** upon **Synchronisation**. For the avoidance of doubt, in the case of a **Genset** located **Offshore** comprising of **Non-Synchronous Generating Units**, **Power Park Modules**, **HVDC Systems** or **DC Converters**, the steady state tolerance allowed in CC.6.3.2(e) or ECC.6.3.2.5.1 or

ECC.6.3.2.~~6.2~~5.2 or ECC.6.3.2.5.3 or ECC.6.3.2.6.1 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 (as applicable) may be applied;

(c) (i) subject to the provisions of 2.5.4(c) (ii) and 2.5.4 (c) (iii) below, the excitation system or the voltage control system of a **Genset** located **Offshore** which has agreed an alternative **Reactive Power** capability range under CC.6.3.2 (e) (iii) or ECC.6.3.2.5.2 or ECC.6.3.2.~~6.3~~5.3 or ECC.6.3.2.6.1 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 (as applicable) or a **Genset** located **Onshore**, unless otherwise agreed with **The Company**, 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 **The Company**. 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 **The Company** 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);

(ii) In the case of all **Gensets** comprising **Non-Synchronous Generating Units**, **DC Converters**, **HVDC Systems** and **Power Park Modules** that are located **Offshore** and which have agreed an alternative **Reactive Power** capability range under CC.6.3.2 (e) (iii), or ~~–~~ECC.6.3.2.5.2 or ECC.6.3.2.5.3 or ECC.6.3.2.6.1 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 (as applicable) or that are located **Onshore** only when operating below 20 % of the **Rated MW** output, the voltage control system shall maintain the **Reactive Power** transfer at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**) to 0 MVAr. For the avoidance of doubt, the relevant steady state tolerance allowed for **GB Generators** in CC.6.3.2(b) or CC.6.3.2 (e) and for **EU Generators** in ECC.6.3.2.4.4, ECC.6.3.2.5.1~~ and~~, ECC.6.3.2.~~6~~5.2~~ and~~, or ECC.6.3.2.~~8.2.~~5.3 or ECC.6.3.2.6.1, ECC.6.3.2.6.2 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 may be applied. In the case of any such **Gensets** owned or operated by **GB Code Users** comprising current source **DC Converter** technology or comprising **Power Park Modules** connected to the **Total System** by a current source **DC Converter** when operating at any power output, the voltage control system shall maintain the **Reactive Power** transfer at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**) to 0 MVAr. For the avoidance of doubt, the relevant steady state tolerance allowed in CC.6.3.2(b) or CC.6.3.2 (c) (i) or CC.6.3.2(e) may be applied.

(iii) In the case of all **Gensets** located **Offshore** which are not subject to the requirements of BC2.5.4 (c) (i) or BC2.5.4 (c) (ii) the control system shall maintain the **Reactive Power** transfer at the **Offshore Grid Entry Point** at 0MVAr. For the avoidance of doubt the steady state tolerance allowed by CC.6.3.2 (e) or ECC.6.3.2.4.4, ECC.6.3.2.5.1~~ and~~, or ECC.6.3.2.5.2 or ECC.6.~~2~~3.2.5.3, or ECC.6.3.2.6.1 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 may be applied.

(d) In the absence of any MVAr **Ancillary Service** instructions,

(i) the MVAr output of each **Genset** located **Onshore** 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** or in the case of a **Genset** comprising of **Power Generating Modules** and/or **Non-Synchronous Generating Units** and/or **Power Park Modules** and/or **HVDC Converters** or **DC Converters** which is operating at less than 20% of its **Rated MW** output where the requirements of BC2.5.4 (c) part (ii) apply, or;

(ii) the MVAr output of each **Genset** located **Offshore** should be 0MVAr immediately prior to **De-Synchronisation** at the **Offshore Grid Entry Point**, other than in the

case of a rapid unplanned **De-Synchronisation** or in the case of a **Genset** comprising of **Non-Synchronous Generating Units**, **Power Park Modules**, **HVDC Converters** or **DC Converters** which is operating at less than 20% of its **Rated MW** output and which has agreed an alternative **Reactive Power** capability range (for **GB Code Users**) under CC.6.3.2 (e) (iii) or ECC.6.3.2.4.4, ECC.6.3.2.5.1~~ and~~, ECC.6.3.2.5.2, or ECC.6.~~2~~3.2.5.3, or ECC.6.3.2.6.1 or ECC.6.3.2.6.3 or ECC.6.3.2.6.4 (for **EU Code Users**) where the requirements of BC2.5.4 (c) (ii) apply.

(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** (or **User System Entry Point** if **Embedded**) identified in the data given pursuant to PC.A.3.2.1 or at the single **Grid Entry Point** to which **The Company** 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 **The Company**. **The Company** 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.

(h) a **Generator** should at all times operate its **Power Park Units** in accordance with the applicable **Power Park Module Availability Matrix**.

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 **NGET's Transmission Area** or less than 10MW in **SHETL's Transmission Area** or less than 30MW in **SPT's Transmission Area** or comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC2.2) and/or **Power Generating Modules** and/or **CCGT Modules** and/or **Power Park Modules** at a **Small Power Station**, notifies **The Company** 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 CC.6.5.8(b) or ECC.6.5.8(b) (as applicable) 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 CC.6.5.8(b) or ECC.6.5.8(b) (as applicable) 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 more in **NGET's Transmission Area** or 10MW or more in **SHETL's Transmission Area** or 30MW or more in **SPT's Transmission Area** or comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC2.2) and/or **Power Generating Modules** and/or **CCGT Modules** and/or **Power Park Modules** at a **Medium Power Station** or **Large Power Station** notifies **The Company** 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 CC.6.5.8(b) or ECC.6.5.8(b) (as applicable) 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 CC.6.5.8(b) or ECC.6.5.8(b) (as applicable) 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 **The Company** 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, unless otherwise agreed with **The Company**, **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** (including **DC Connected Power Park Modules** (if relevant)) communications under **BC2** shall be by telephone unless otherwise agreed by **The Company** 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 **The Company** within two minutes of the issue of the **Bid-Offer Acceptance**, then **The Company** 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 an outage of **The ~~Company~~Company's** 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), **The Company** 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.

(h) Submissions of revised availability of **Frequency Sensitive Mode** may be made by facsimile transmission, using the format given in Appendix 4 to **BC2**. This process should only be used for technical restrictions to the availability of **Frequency Sensitive Mode**.

BC2.6.2 Communication With Control Points In Emergency Circumstances

The Company 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

The Company will issue **Emergency Instructions** direct to the **Network Operator** at each **Control Centre** in relation to actions including special actions as set out in BC1.7, actions in the categories set out under BC2.9.3.3, **Embedded Generation Control** and **Demand Control actions**. **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; OC6B contains further provisions relating to **Embedded Generation Control** instructions.

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

The Company 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 **The Company** 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 **The Company** during the outage will be conducted by telephone;

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

(d) no data will be transferred from **The Company** 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~~of Bids ~~And~~and Offers ~~By~~by The Company

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** and **Export and Import Limits** of the **BM Unit** in so far as the **Balancing Mechanism** timescales will allow (see BC2.7.2).

(a) **The Company** 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** 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 **The Company** 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 **The Company** 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 And Dynamic Parameters

(a) **Bid-Offer Acceptances** will be consistent with the **Export and Import Limits** 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 **The Company** 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**, **Export and Import Limits** and **Bid-Offer Data** applicable to that period, **The Company** 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~~and Rejection ~~Of~~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** or **Dynamic Parameters** 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, **The Company** will seek to contact the **Control Point** for the **BM Unit**. **The Company** must then, within 15 minutes of issuing the **Bid-Offer Acceptance**, withdraw the **Bid-Offer Acceptance** or log the **Bid-Offer Acceptance** as confirmed. **The Company** will only log a rejected **Bid-Offer Acceptance** as confirmed following discussion and if the reason given is, in **The Company's** reasonable opinion, not acceptable, **The Company** 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 **The Company** with no more than the delay allowed for by the **Dynamic Parameters** unless the **BM Unit** has given notice to **The Company** 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 **The Company** 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), **The Company** 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~~required when responding to Bid-Offer Acceptances

(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 **The Company** 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.

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

(e) When complying with **Bid-Offer Acceptances** for a **Synchronous Power Generating Module**, a **Generator** will operate its **Generating Units** in accordance with the applicable **Synchronous Power Generating Module Availability Matrix**.

(f) When complying with **Bid-Offer Acceptances** for an **Additional BM Unit** or **Secondary BM Unit** they will operate in accordance with the applicable **Aggregator Impact Matrix**.

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**.

BC2.8.1 Call-Off ~~Of~~of Ancillary Services ~~By~~by The Company

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

(b) **The Company** 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 **The Company** 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 provisions under the **CUSC**.

(f) A **System to Generator Operational Intertripping Scheme** will be armed in accordance with BC2.10.2(a).

BC2.8.2 Consistency ~~With~~with Export ~~And~~and Import Limits ~~And~~and Dynamic Parameters

Ancillary Service instructions will be consistent with the **Export and Import Limits** 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~~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~~**Plant**) or because they are not consistent with the applicable **Export and Import Limits**, **Dynamic Parameters**, **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

(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 **The Company** within 2 minutes or such longer period as **The Company** may instruct, and all other **Ancillary Service** instructions without delay, unless the **BM Unit** or **Generating Unit** has given notice to **The Company** 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 **The Company** and the **User**, including but not limited to, as a result of providing an **Ancillary Service** in accordance with the **Ancillary Service Agreement**.

(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), **The Company** 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.

BC2.8.5 Reactive Despatch Network Restrictions

Where **The Company** has received notification pursuant to the Grid Code that a **Reactive Despatch to Zero MVAr Network Restriction** is in place with respect to any **Embedded Power Generating Module** and/or ~~-~~**Embedded Generating Unit** and/or **Embedded Power Park Module** or **HVDC Converter** at an **Embedded HVDC Converter Station** or **DC Converter** at an **Embedded DC Converter Station**, then **The Company** will not issue any **Reactive Despatch Instruction** with respect to that **Power Generating Module** and/or **Generating Unit** and/or **Power Park Module** or **DC Converter** or **HVDC Converter** until such time as notification is given to **The Company** pursuant to the Grid Code that such **Reactive Despatch to Zero MVAr Network Restriction** is no longer affecting that **Power Generating Module** and/or **Generating Unit** and/or **Power Park Module** or **DC Converter** or **HVDC Converter**.

BC2.9 EMERGENCY CIRCUMSTANCES

BC2.9.1 Emergency Actions

BC2.9.1.1 In certain circumstances (as determined by **The Company** in its reasonable opinion) it will be necessary, in order to preserve the integrity of the **National Electricity Transmission System** and any synchronously connected **External System**, for **The Company** 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 **National Electricity 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 **Gensets** 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**~~**System Restoration** process or the **Re-Synchronisation** of ~~**De-Synchronised**~~**Power Island** process in accordance with OC9; or

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

(iii) the need to issue an **Emergency Deenergisation Instruction** in circumstances where the condition or manner of operation of any **Transmission Plant** and/or **Apparatus** is such that it may cause damage or injury to any person or to the **National Electricity Transmission System**; or

(f) the need to implement **Embedded Generation Control** in accordance with OC6B.

BC2.9.1.3 In the case of **BM Units** and **Generating Units** in **Great Britain**, **Emergency Instructions** will be issued by **The Company** 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** 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~~of Emergency Instructions

BC2.9.2.1 **Users** will respond to **Emergency Instructions** issued by **The Company** 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 **The Company** 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:

(i) **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**; and

(ii) an **Emergency Deenergisation Instruction**, where the **Emergency Deenergisation Instruction** will be pre-fixed with the words 'This is an **Emergency Deenergisation Instruction**'; and

(iii) during ~~a **Black Start**~~**System Restoration** situation where the **Balancing Mechanism** has been suspended, any instruction given by **The Company** will (unless **The Company** specifies otherwise) be deemed to be an **Emergency Instruction** and need not be pre-fixed with the words 'This is an **Emergency Instruction**'; and

(iv) during ~~a **Black Start** situation~~**System Restoration** where the **Balancing Mechanism** has not been suspended, any instruction ~~in relation~~issued to ~~**Black Start Stations, Black Start HVDC Systems** and~~**Restoration Contractors** or to **Network Operators** which are part of an invoked **Local Joint Restoration Plan** will (unless **The Company** specifies otherwise) be deemed to be an **Emergency Instruction** and need not be prefixed with the words 'This is an **Emergency Instruction**'. Equally during a **System Restoration** where the **Balancing Mechanism** has not been suspended, any instruction to **Network Operators** which are part of an activated **Distribution Restoration Zone Plan** will (unless **The Company** specifies otherwise) be deemed to be an **Emergency Instruction** and need not be prefixed by the words "This is an **Emergency Instruction**".

In Scotland, any instruction ~~in relation~~from the **Relevant Transmission Licensee** to ~~**Gensets** that are not at **Black Start Stations** or to **HVDC Systems** or **DC Converter Stations** that are not part of **Black Start HVDC Systems**, but~~**Restoration Contractors** which are part of an invoked **Local Joint Restoration Plan** and are instructed in accordance with the provisions of that **Local Joint Restoration Plan,** will be deemed to be an **Emergency Instruction** and need not be prefixed with the words 'This is an **Emergency Instruction**'. Equally any instruction from the **Relevant Transmission Licensee** to **Network Operators** who are party to an activated **Distribution Restoration Zone Plan** and are instructed in accordance with the provisions of that **Distribution Restoration Zone Plan** will be deemed to be an **Emergency Instruction** and need not be prefixed with the words "This is an **Emergency Instruction**".

BC2.9.2.3 In all cases under this BC2.9, except BC2.9.1.2 (e) where **The Company** 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 **The Company** 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**.

BC2.9.2.5 In the case of BC2.9.1.2 (e) (iii) where **The Company** issues an **Emergency Deenergisation Instruction**, payment will be dealt with in accordance with the **CUSC**, Section 5.

BC2.9.2.6 In the case of BC2.9.1.2 (e) (i), upon receipt of an **Emergency Instruction** by a **Generator** during a ~~**Black Start**~~**System Restoration**, the provisions of Section G of the **BSC** relating to compensation shall apply.

BC2.9.3 Examples ~~Of~~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** 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** (excluding **Operational Intertripping**); or

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

(c) an instruction to **Part Load** a **Power Generating Module** and/or **CCGT Module** or **Power Park 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 **The Company** in **The Company'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 **The Company** in **The Company's** reasonable opinion); or

(g) an instruction for the operation of a **Power Park Module** (on the basis of the information contained within the **Power Park Module Availability Matrix**) when emergency circumstances prevail (as determined by **The Company** in **The Company'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**~~.~~;

(f) ~~a~~ requirement for **Embedded Generation Control** or restoration pursuant to OC6B; or

(g) an instruction to activate a **Distribution Restoration Zone Plan** as provided for in OC9.4.7.8.1.

BC2.9.4 Maintaining Adequate System ~~And~~and Localised NRAPM (Negative Reserve Active Power Margin)

BC2.9.4.1 Where **The Company** is unable to satisfy the required **System NRAPM** or **Localised NRAPM** by following the process described in BC1.5.5, **The Company** will issue an **Emergency Instruction** to exporting **BM Units** for **De-Synchronising** on the basis of **Bid-Offer Data** submitted to **The Company** in accordance with BC1.4.2(d). If **The Company** is still unable to satisfy the required **System NRAPM** or **Localised NRAPM** then **The Company** may issue **Emergency Instructions** to **Network Operator(s)** as set out under OC6B to carry out **Embedded Generation Control**.

BC2.9.4.2 In the event that **The Company** is unable to differentiate between exporting **BM Units** according to **Bid-Offer Data**, **The Company** will instruct a **BM Participant** to **Shutdown** a specified exporting **BM 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 **The Company** is still unable to differentiate between exporting **BM Units**, having considered all the foregoing, **The Company** will decide which exporting **BM 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, **The Company** 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 **The Company** 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 **The Company** 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**, **The Company** 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** which form part of an **On-Site Generator Site** to reduce generation or export under this BC2.9.4, **The Company** will not issue an instruction which would reduce generation or export 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 an adequate level of Frequency Sensitive Generation

BC2.9.5.1 If, post **Gate Closure**, **The Company** determines, in its reasonable opinion, from the information then available to it (including information relating to a **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 **The Company** 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 **The Company'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 results in an export of power from the **Total System**,

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

BC2.9.5.2 If in **The Company'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 **The Company** takes any available action to increase the **Active Energy** transferred into its **External System**, or reduce the **Active Energy** transferred into the **National Electricity 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 **The Company** providing this does not require a reduction of **Demand** on the **National Electricity Transmission System**, or lead to a reduction in security on the **National Electricity Transmission System**.

(b) **The Company** may request that an **Externally Interconnected System Operator** takes any available action to increase the **Active Energy** transferred into the **National Electricity 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 **National Electricity 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 **The Company'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 **The Company** will, as soon as it is reasonably able to do so, issue a **The Company** Computing System Failure notification by telephone or such other means agreed between **Users** and **The Company** indicating the likely duration of the outage.

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

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

(b) (i) **BM Participants**, not subject to the provisions of BC2.9.7.2(b)(ii), should operate in relation to any period of time in accordance with the last **Physical Notification** prevailing at **Gate Closure** received prior to 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 **The Company** 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;

(ii) **BM Participants**, who are not required to have **Control Telephony** or **System Telephony** staffed at all times as provided for in CC7.9 or ECC7.9, should during periods when their telephones are not staffed operate in relation to any period of time in accordance with the last **Physical Notification** prevailing at **Gate Closure** received at the prior 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. If the **BM Participants** automatic equipment identifies there has been a computer system failure then 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. For the avoidance of doubt between 08:00 and 18:00 hours the provisions of BC2.9.7.2(b)(i) shall apply.

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

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

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

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

BC2.9.8 Market Suspension

BC2.9.8.1 Within the **GB Synchronous Area**, the **National Electricity Transmission System** shall be determined to be in an emergency state when operational security analysis indicates one or more of the following situations occurring:

a) A situation where there is (or could be) a violation of one or more operational criteria as defined under the **Security and Quality of Supply Standard (SQSS)**; or

b) A situation when Unacceptable Frequency Conditions as defined under the **System Security and Quality of Supply Standard (SQSS)** have occurred; or

c) At least one measure of the **System Defence Plan** is activated; or

d) There is a failure of the computing facilities used to control and operate the **National Electricity Transmission System** or unplanned outages of Electronic Communication and Computing Facilities as provided for in BC2.9.7 or the loss of communication, computing and data facilities with other **Transmission Licensees** as provided for in STCP 06-4.

BC2.9.8.2 While the **National Electricity Transmission System** is in an emergency state if, after issuing **National Electricity Transmission System Warnings** and **Emergency Instructions** in

accordance with (but not limited to) the requirements under OC7.4 and BC2.9, the situation deteriorates to such an extent that it results in:-

a) a **Total Shutdown**, **The Company** will suspend the market in accordance with the provisions of OC9.4.6; or

b) a **Partial Shutdown**, **The Company** will suspend the market but only where the **Market Suspension Threshold** has been met in accordance with OC9.4.6.

BC2.10 OTHER OPERATIONAL INSTRUCTIONS AND NOTIFICATIONS

BC2.10.1 **The Company** may, from time to time, need to issue other instructions or notifications associated with the operation of the **National Electricity Transmission System**.

BC2.10.2 Such instructions or notifications may include:

Intertrips

(a) an instruction to arm or disarm 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 **National Electricity Transmission System**, including arrangements for a change in output to meet post fault security requirements;

Changes to Target Frequency

(e) 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 **The Company** in its reasonable opinion, may be 49.90 or 50.10Hz.

BC2.10.3 Where an instruction or notification under BC2.10.2 (c) or (d) results in a change to the input or output level of the **BM Unit** then **The Company** 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 **The Company's** agreement for one of the **Gensets** at that **Power Station** to be operated under a risk of trip. **The Company's** agreement will be dependent on the risk to the **National Electricity 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** (excluding **Power Park Modules**) 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 **The Company**.

(b) Each **Generator** at the **Control Point** for any of its **Large Power Stations** will operate its **Power Park Modules** with a **Completion Date** before 1st January 2006 at unity **Power Factor** at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**).

(c) Each **Generator** at the **Control Point** for any of its **Large Power Stations** will operate its **Power Park Modules** with a **Completion Date** on or after 1st January 2006 in voltage control mode at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**). Constant **Reactive Power** or **Power Factor** mode should, if installed, be disabled.

(d) Where a **Power System Stabiliser** is fitted as part of the excitation system or voltage control system of a **Genset**, it requires on-load commissioning which must be witnessed by **The Company**. Only when the performance of the **Power System Stabiliser** has been approved by **The Company**, shall it be switched into service by a **Generator** and then it will be kept in service at all times unless otherwise agreed with **The Company**. Further reference is made to this in CC.6.3.8 or ECC.6.3.8.

BC2.11.3 A **Generator** at the **Control Point** for any of its **Power Stations** may request **The Company'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. **The Company's** agreement will be dependent on the risk that would be imposed on the **National Electricity 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) .

BC2.11.4 Each **Generator** shall operate its dynamically controlled **OTSDUW Plant and Apparatus** to ensure that the reactive capability and voltage control performance requirements as specified in CC.6.3.2, CC.6.3.8, CC.A.7 or ECC.6.3.2, ECC.6.3.8, ECC.A.7, ECC.A.8 and the **Bilateral Agreement** can be satisfied in response to the **Setpoint Voltage** and **Slope** as instructed by **The Company** at the **Transmission Interface Point**.

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 Users BM Units**.

(b) **The Company** 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 **The Company** 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.

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer

i) **Interconnector Owners** shall use best endeavours to deliver an updated

Interconnector Scheduled Transfer to **NGET** by 10 minutes after each Intraday Cross-Zonal Gate Closure Time.

ii) The updated Interconnector Scheduled Transfer shall fully reflect the results of the Single Intraday Coupling.

iii) **Interconnector Owners** must ensure that the updated Interconnector Scheduled Transfer is received in its entirety and logged into **NGET's** computer systems by the time of 10 minutes after each Intraday Cross-zonal Gate Closure Time.

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**. The **Bid-Offer Acceptances** relating to **Synchronous Power Generating Modules** will assume that the **Synchronous Generating Units** within the **Synchronous Power Generating Module** will operate in accordance with the **Synchronous Power Generating Module Matrix**, as required by **BC1**.

BC2.A.1.4 <u>Bid-Offer Acceptances Given By Automatic Logging Device</u>

(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 <u>Bid-Offer Acceptances Given By Telephone</u>

(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 **The Company** will be converted into "from" and "to" MW levels and times before they are submitted to the **BMRA** by **The Company**.

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 or ECC.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~~Anchor Plant Capability** or **Top Up Restoration Capability**

(e) **System to Generator Operational Intertripping**

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, unless otherwise agreed with **The Company**, **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~~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 **The Company**.

(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

(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~~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:

(a) an exchange of operator names;

(b) **BM Unit** Name;

(c) Time of instruction;

(d) Type of instruction (MVAr, VOLT, SETPOINT, **SLOPE** or TAPP)

(e) Target Value

(f) 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 **National Electricity 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 or **Grid Entry Point** or **User System Entry Point** in the case of a **Power Generating Module**. In relation to each **Genset**, where there is no HV indication, **The Company** 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 **The Company**) by tap changing on the generator step-up transformer, or adjusting the **Genset** terminal voltage, subject to compliance with CC.6.3.8 (a) (v), or ECC.6.3.8.3.3 (as applicable) to a value that is equal to or higher than 1.0p.u. of the rated terminal voltage, or a combination of both. Once this has been achieved, the **Generator** will not tap again and will not readjust the **Genset** terminal voltage without prior consultation with and the agreement of **The Company**, on the basis that MVAr output will be allowed to vary with **System** conditions.	MVAr

Instruction Name	Description	Type of Instruction
Target Voltage Levels	Target voltage levels to be achieved by the **Genset** on the **National Electricity 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 or **Grid Entry Point** or **User System Entry Point** in the case of a **Power Generating Module**. 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 **The Company**) by tap changing on the generator step-up transformer, or adjusting the **Genset** terminal voltage, subject to compliance with CC.6.3.8 (a) (v) or ECC.6.3.8.3.3 (as applicable), to a value that is equal to or higher than 1.0p.u. of the rated terminal voltage, or a combination of both. In relation to each **Genset**, where there is no HV indication, **The Company** 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 and will not readjust the **Genset** terminal voltage without prior consultation with, and with the agreement of, **The Company**. 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, or adjusting the **Genset** terminal voltage, subject to compliance with CC.6.3.8 (a) (v) or ECC.6.3.8.3.3 (as applicable), to a value that is equal to or higher than 1.0p.u. of the rated terminal voltage, or a combination of both without reference to **The Company**.	VOLT
Setpoint Voltage	Where a **Non-Synchronous Generating Unit**, **DC Converter** or **Power Park Module** or **HVDC Converter** is instructed to a specific **Setpoint Voltage**, the **Generator** must achieve that **Setpoint Voltage** within a tolerance of ±0.25% (or such other figure as may be agreed with **The Company**). The **Generator** must maintain the specified **Setpoint Voltage** target until an alternative target is received from **The Company**.	SETPOINT

Instruction Name	Description	Type of Instruction
Slope	Where a **Non-Synchronous Generating Unit**, **DC Converter** or **Power Park Module** or **HVDC Converter** is instructed to a specific **Slope**, the **Generator** must achieve that **Slope** within a tolerance of ±0.5% (or such other figure as may be agreed with **The Company**). The **Generator** must maintain the specified **Slope** target until an alternative target is received from **The Company**. The **Generator** will not be required to implement a new **Slope** setting in a time of less than 1 week from the time of the instruction.	SLOPE
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 **The Company** issued simultaneously to relevant **Power Stations**. The instruction, which is normally preceded by advance notice, must be effected as soon as possible, and in any event within one minute of receipt from **The Company** 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.	TAPP
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 **The Company** 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 as **The Company** 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, **The Company** 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** or **Generating Units** within a **Synchronous Power Generating 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 **The Company**.

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	In the case of a **Synchronous Generating Unit** (as defined in the Glossary and Definitions ((which could be part of a **Synchronous Power Generating Module**) and not limited by BC2.2) is the MW output measured at the generator stator terminals representing the LV equivalent of the **Registered Capacity** at the **Grid Entry Point**, and in the case of a **Non-Synchronous Generating Unit** (excluding **Power Park Units**), **HVDC Converter** or **DC Converter** or **Power Park Module** is the **Registered Capacity** at the **Grid Entry Point**.
Minimum Output	In the case of a **Synchronous Generating Unit** (as defined in the Glossary and Definitions ((which could be part of a **Synchronous Power Generating Module**) and not limited by BC2.2) is the MW output measured at the generator stator terminals representing the LV equivalent of the **Minimum Generation** or **Minimum Stable Operating Level** at the **Grid Entry Point**, and in the case of a **Non-Synchronous Generating Unit** (excluding **Power Park Units**), **HVDC Converter** or **DC Converter** or **Power Park Module** is the **Minimum Generation** or **Minimum Stable Operating Level** or **Minimum Active Power Transmission Capacity** 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 **The Company** (to the relevant location in accordance with GC6) and must contain all the sections from the relevant part of Annexure 1 and from either Annexure 2 or 3 (as applicable) 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, **The Company** 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 REACTIVE POWER CAPABILITY DATA

TO: National Electricity Transmission System Control Centre

Fax telephone No.

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

Sent By : .....

Return Acknowledgement Fax to .....

For Retransmission or Clarification ring.....

Acknowledged by **The Company**: (Signature)

.....

Acknowledgement time and date
.....

Legibility of FAX :

Acceptable		
Unacceptable (List pages if appropriate)		(Resend FAX)

APPENDIX 3 - ANNEXURE 2

To: National Electricity Transmission System Control Centre

From : [Company Name & Location]

REVISED REACTIVE POWER CAPABILITY DATA – GENERATING UNITS EXCLUDING POWER PARK MODULES AND DC CONVERTERS

Notification Time (HH:MM):	Notification Date (DD/MM/YY):
Start Time (HH:MM):	Start Date (DD/MM/YY):
Generating Unit*	

* For a **Synchronous Power Generating Module** and/or **CCGT Module** and/or a **Cascade Hydro Scheme**, the redeclaration is for a **Generating Unit** within a **Synchronous Power Generating Module** and/or **CCGT Module** and/or **Cascade Hydro Scheme**. For **BM Units**, quote **The Company BM Unit** id, for other units quote the **Generating Unit** id used for OC2.4.1.2 Outage Planning submissions. **Generating Unit** has the meaning given in the Glossary and Definitions and is not limited by BC2.2.

REVISION TO THE REACTIVE POWER CAPABILITY AT THE GENERATING UNIT STATOR TERMINALS (at rated terminal volts) **AS STATED IN THE RELEVANT ANCILLARY SERVICES AGREEMENT:**

	MW	MINIMUM (MVAr +ve for lag, -ve for lead)	MAXIUM (MVAr +ve for lag, -ve for lead)
AT **RATED MW**			
AT FULL OUTPUT (MW)			
AT MINIMUM OUTPUT (MW)			

COMMENTS *e.g. generator transformer tap restrictions, predicted end time if known*

_____

_____

Redeclaration made by (Signature)

_____

APPENDIX 3 - ANNEXURE 3

To: National Electricity Transmission System Control Centre

From : [Company Name & Location]

REVISED REACTIVE POWER CAPABILITY DATA – POWER PARK MODULES, HVDC CONVERTERS AND DC CONVERTERS

Notification Time (HH:MM):	Notification Date (DD/MM/YY):
Start Time (HH:MM):	Start Date (DD/MM/YY):
Power Park Module / DC Converter*	

* For BM Units quote **The Company BM Unit** id, for other units quote the id used for OC2.4.1.2 Outage Planning submissions

Start Time/Date (if not effective immediately)

REVISION TO THE REACTIVE POWER CAPABILITY AT THE COMMERCIAL BOUNDARY AS STATED IN THE RELEVANT ANCILLARY SERVICES AGREEMENT:

	MINIMUM (MVAr +ve for lag, -ve for lead)	MAXIMUM (MVAr +ve for lag, -ve for lead)
AT **RATED MW**		
AT 50% OF **RATED MW**		
AT 20% OF **RATED MW**		
BELOW 20% OF **RATED MW**		
AT 0% OF **RATED MW**		

COMMENTS *e.g. generator transformer tap restrictions, predicted end time if known*

_____

_____

Redeclaration made by (Signature)

APPENDIX 4 - SUBMISSION OF AVAILABILITY OF FREQUENCY SENSITIVE MODE

BC2.A.4.1 For the purpose of submitting availability of **Frequency Sensitive Mode**, this process only relates to the provision of response under the **Frequency Sensitive Mode** and does not cover the provision of response under the **Limited Frequency Sensitive Mode**.

BC2.A.4.2 The following provisions apply to the faxed submission of the **Frequency Sensitive Mode availability**;

(a) The fax must be transmitted to **The Company** (to the relevant location in accordance with GC6) and must contain all the sections relevant to Appendix 4 - Annexure1 but with only the data changes set out. The “notification time” must be completed to refer to the time and date of transmission, where the time is expressed in London time.

(b) Upon receipt of the fax, **The Company** will acknowledge receipt by sending a fax back to the **User**. This acknowledging fax should be in the format of Appendix 4 – Annexure 1. 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 paragraph (b) and (c) then apply to the re-transmitted fax.

BC2.A.4.3 The **User** shall ensure the availability of operating in **Frequency Sensitive Mode** is restored as soon as reasonably practicable and will notify **The Company** using the format of Appendix 4 – Annexure 1. In the event of a sustained unavailability of **Frequency Sensitive Mode**, **The Company** may seek to confirm compliance with the relevant requirements in the **CC** or **ECC** through the process in **OC5** or **ECP**.

APPENDIX 4 - ANNEXURE 1

To: National Electricity Transmission System Control Centre

From : [Company Name & Location]

Submission of availability of Frequency Sensitive Mode

Notification Time (HH:MM):	Notification Date (DD/MM/YY):
Start Time (HH:MM):	Start Date (DD/MM/YY):
Genset or DC Converter	

The availability of the above unit to operate in **Frequency Sensitive Mode** is as follows:

All contract modes: Available / Unavailable *[delete as applicable];* or

<u>Change</u> to the availability of individual contract modes:

Contract Mode e.g. *A*	**Availability for operation in Frequency Sensitive Mode** *[Y/N]*

COMMENTS *e.g. reason for submission, predicted end time if known*

_____

_____

Redeclaration made by (Signature)_____

Receipt Acknowledgement from **The Company**

Legible (tick box)		Illegible (tick box)	
Explanation:			
Time: Date: Signature:			

< END OF BALANCING CODE 2