GC0068 Grid Code New & Revised Unit Data & Instructions

What stage is this document at?

01	Workgroup Report
02	Industry Consultation
03	Report to the Authority

This proposal seeks to modify the Grid Code to capture changes to unit data and instructions resulting from functionality introduced with National Grid's new Electricity Balancing System.

This document is open for Industry Consultation. Any interested party is able to make a response in line with the guidance set out in Section 5 of this document.

Published on: **4 November 2013**
Length of Consultation: **20 Working Days**
Responses by: **3 December 2013**

National Grid recommends:
GC0068 should be implemented as it better facilitates the applicable Grid Code objectives (i), (ii) and (iii)

High Impact:
BM Participants, National Grid

Medium Impact:
None identified

Low Impact:
None identified

Contents

About this document

This Industry Consultation outlines the information required for interested parties to form an understanding of a defect within the Grid Code seeks the views of interested parties in relation to the issues raised by this Modification Proposal.

Parties are requested to respond by **3 December 2013** to grid.code@nationalgrid.com

Document Control

Version	Date	Author	Change Reference
0.1	18 October 2013	National Grid	Draft Industry Consultation
1.0	4 November 2013	National Grid	Final Industry Consultation

Any Questions?

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1 Executive Summary

1.1 National Grid's Balancing Mechanism (BM) System is being replaced with the Electricity Balancing System (EBS). The BM System receives data from market participants, issues instructions and publishes the results to the Balancing Mechanism Reporting Agent (BMRA) and Settlement Administration Agent (SAA).

1.2 EBS is currently planned to go-live in the third quarter of 2014. National Grid will support the existing market participant interfaces of Electronic Dispatch Logging (EDL) and Electronic Data Transfer (EDT) at EBS go-live and for five years following go-live. Six months after implementation, National Grid will offer market participants the opportunity to move to the new industry interfaces EDT* and EDL* which will allow new and revised data and instructions proposed by this consultation to be exchanged by electronic means. Following an Authority decision, National Grid proposes that GC0068 be implemented on or around the date of the go-live of the Electricity Balancing System as the changes are associated with the introduction of the new system.

1.3 This modification proposes changes to the Grid Code to formalise the new industry interfaces that have previously been subject to industry consultation[1]. Whilst there may be a cost to BM Participants of moving from existing to new interfaces, there will be the option of lower cost interfaces e.g. via the internet and the changes delivered by EBS will facilitate competition and efficiency. The key changes include:

- The introduction of formal definitions for the existing terms for data communication technologies: Electronic Data Communication Facilities and Automatic Logging Device. Additionally, new 'child' terms are introduced for each to identify the relevant interface. Automatic Logging Device (EDL) and Electronic Data Communication Facilities (EDL & EDT) refer to those using legacy interfaces. Automatic Logging Device (EDL*) and Electronic Data Communication Facilities (EDT*) refer to those using new interfaces.

- The removal of provisions for submission of Day Ahead Dynamic Parameters and the consequent transfer of the definitions of Dynamic Parameter from the Appendix of BC1 to the Appendix of BC2

- The addition of parallel sections detailing the attributes of certain Dynamic Parameters depending on whether the existing interface (EDL) or the new interface (EDT*) is being used, in particular:

    - Up to three Run-Up / Run-Down rates can be submitted at a minimum of 0.2MW/min using the EDL whereas up to ten rates can be submitted at a minimum of 0.02MW/min using EDT*;

    - The Stable Import and Export Limits (SIL and SEL) are submitted as single static MW values using EDL whilst time-varying profiles can be submitted using EDT*.

- The description of Tap Changes, under Reactive Power, has been revised to include details from the latest Operational Guidance Note for Simultaneous Tap Changes

[1] http://www.nationalgrid.com/NR/rdonlyres/B961884A-EC28-4771-A40F-02F254B00A18/28752/bmrepconsultationv10.pdf; http://www.nationalgrid.com/NR/rdonlyres/D8A635FF-D73D-486C-97A1-6A0F1BA66627/43481/bmrepconsultation2interfacesandBMUmodellingv10.pdf

- BC2 has been expanded to detail the arrangements for the deviation of a BM Unit from zero that has been operating at zero as a result of Bid-Offer Acceptances

- Changes to the content and format of the Reactive Power capability and Frequency Response availability fax forms

1.4 In parallel with this consultation, changes to the Data Validation, Consistency and Defaulting Rules are proposed relating to the BM Unit Data defined in the Grid Code. These changes are contained in an associated informal consultation and can be viewed via the link below:

http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/

1.5 Modification P297 has been raised to the Balancing and Settlement Code (BSC) to ensure that the Dynamic Data Set, the Dynamic Parameters as they are defined in the BSC, is revised in line with the changes brought in by EBS.

1.6 Some consequential changes have been identified to the Connection and Use of System Code (CUSC) where it details the Grid Code's requirements for Automatic Logging Devices and Electronic Data Communications Facilities. As these amendments are minor and dependent on the Grid Code changes being implemented, it is recommended that a CUSC Modification Proposal is raised once the implementation date of the proposed Grid Code changes has been determined.

1.7 Views are invited upon the proposals outlined in this report, which should be received by 3 December 2013. Further information on how to submit a response can be found in Section 5.

National Grid Recommendation

1.8 National Grid supports the implementation of GC0068 as it better facilitates the Applicable Grid Code Objectives (i), (ii) and (iii). It does this by:

- Allowing a greater range of data to be exchanged electronically between BM Participants and National Grid;

- Providing BM Participants with a greater range of IT options with which to exchange data with National Grid;

- Improving the modelling of CCGT modules, especially their start-up profiles;

- Removing obligations on BM Participants to submit data that is no longer used;

- Detailing the arrangements that apply when a BM Unit deviates from zero following operation at zero as a result of Bid-Offer Acceptances.

2 Why Change?

Background

2.1 National Grid's Balancing Mechanism (BM) System, that receives data from market participants, issues instructions and publishes the results to the Balancing Mechanism Reporting Agent (BMRA) and Settlement Administration Agent (SAA), is being replaced with the Electricity Balancing System (EBS). In October 2008, National Grid launched a consultation[2] on proposals for a replacement BM system designed to offer improved functionality and resilience. Amendments are now required to the Grid Code, to facilitate the functional enhancements delivered by the EBS.

2.2 At the January 2013 Grid Code Review Panel (GCRP) meeting two Issue Papers[3] were presented, for Reactive and Frequency Report Fax Form Information (pp13/03) and New and Revised Balancing Code Parameters and Instructions (pp13/04). The GCRP asked the Electricity Balancing System Group (EBSG) to progress solutions to industry consultation. Since the timescales for pp13/03 and pp13/04 changes are now aligned, these changes are being consolidated into this single consultation.

2.3 National Grid will support the existing industry interfaces of EDL and EDT at EBS go-live and for five years following go-live. From approximately six months after EBS go-live, National Grid will offer market participants the opportunity to move to the new industry interfaces EDT* and EDL* which will allow a greater range of data and instructions to be exchanged by electronic means. This approach has been agreed with the industry at the EBSG and the associated IT sub-group, and was the subject of an industry consultation[4] in 2010.

2.4 Key changes comprise:

- Reactive and Frequency Report Fax Form Information -
  Revisions to the data exchanged to improve clarity and simplicity and to facilitate the electronic exchange of this data;
- New and Revised Balancing Code Parameters -
  Revisions to the Grid Code to accommodate changes to the definitions of Dynamic Parameters that have been agreed with industry and are supported by the new system;
- "Re-synchronisation" of BM Units that have been bid off -
  Currently the Grid Code provides no information on the arrangements that should apply when a BM Unit is deviating from zero following being bid off. Since the introduction of NETA in 2001, custom and practice has been established but is undocumented. Clarifications are required for reference in the case of dispute and for the benefit of new entrants;
- Simultaneous Tap Change -
  Update to the Grid Code to reflect current arrangements for Simultaneous Tap Change instructions as these are only presently detained in a Grid Code Associated Document.

EDL & EDL

Electronic Dispatch Logging (EDL) connects National Grid and Control Points. It allows National Grid to send BOAs, Ancillary Service instructions to Control Points and Control Points to send National Grid Export & Import Limits and Dynamic Parameters.

Electronic Data Transfer (EDT) connects Trading Points to National Grid. It allows market participants to send Physical Notifications, Bid-Offer Data Prices and Export & Import Limits to National Grid.

EDT* is the new industry interface that supports data submission from both Trading Points and Control Points including the new and revised Dynamic Parameters and Ancillary Services Operational Data. Data can be submitted computer to computer over private lines or using web-pages over the internet.

[2] http://www.nationalgrid.com/NR/rdonlyres/B961884A-EC28-4771-A40F-02F254B00A18/28752/bmrepconsultationv10.pdf

[3] These propose to revise and simplify the reactive power capability and frequency response availability information submitted by market participants (13/03) and to introduce new and revised Dynamic Parameters and instructions, facilitated by EBS (13/04). http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/reviewpanelinfo/2013/16th+January/

[4] http://www.nationalgrid.com/NR/rdonlyres/73CC8BC8-B070-4BF2-A24E-B1A15A43A9F8/44635/Reportonbmrepconsultation2v11.pdf

2.5 Alongside this consultation, National Grid has proposed changes to the Data Validation, Consistency and Defaulting Rules document. The current version of the Data Validation, Consistency and Defaulting Rules document is Issue 8. When changes are made to this document the reference to it in the Grid Code Glossary and Definitions will need to be updated to Issue 9. This update to Issue 9 will only be implemented if the changes proposed to the Data Validation, Consistency and Defaulting Rules document are made. The changes that have been proposed are the subject of a separate, informal, consultation and can be viewed via the link below:

http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/

2.6 BSC modification P297[5] has been raised in parallel to this modification to ensure that the Dynamic Data Set, the Dynamic Parameters as they are defined in the BSC, is revised in line with the changes brought in by EBS such that the new and revised parameters can be published on the BMRA.

2.7 Section 6.8 of the CUSC refers to provisions under the Grid Code for interface facilities required of BSC Trading Parties and BM Participants (referencing Connection Conditions 6.5.8). It is anticipated that some minor consequential amendments will be required to the CUSC to reflect these Grid Code changes. To ensure consistency between Codes, it is recommended that the consequential CUSC changes are postponed until the implementation date of the proposed Grid Code changes has been agreed.

[5] http://www.elexon.co.uk/mod-proposal/p297/

3 Solution

3.1 The following changes to the Grid Code are being proposed to reflect the new functionality offered by the EBS in line with industry views expressed in their responses to consultations and Workgroup discussions.

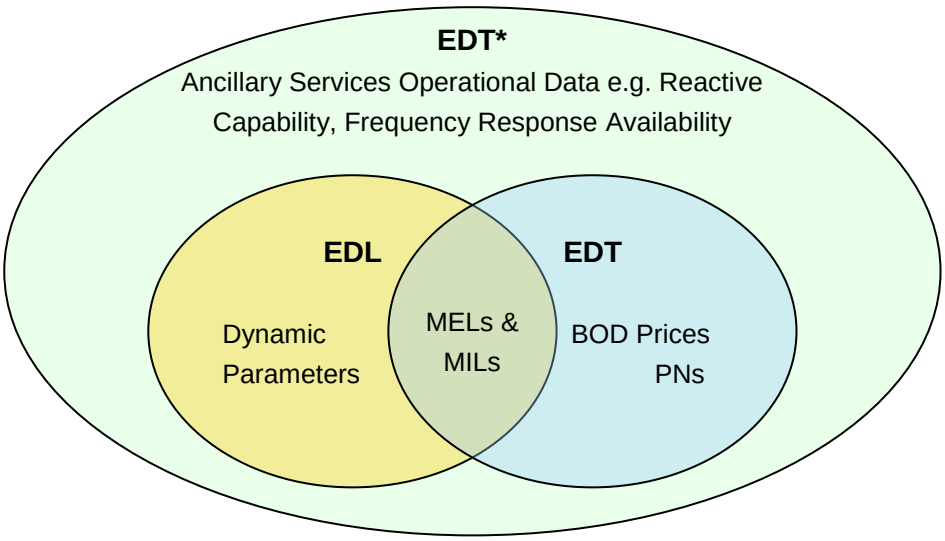
Revised Balancing Code Parameters and Instructions

Glossary and Definitions

3.2 **New Definitions Introduced:** For the five year period after EBS go-live, National Grid will support both the existing EDL & EDT and the new EDL* & EDT* industry interfaces. To maintain clarity and distinction between legacy and non-legacy arrangements new terms are proposed to the Glossary and Definitions.

3.3 Automatic Logging Device (ALD) and Electronic Data Communication Facilities (EDCF) are both used in the Grid Code but currently as undefined terms. Definitions are proposed to these generic terms plus two further interface-specific definitions each indicated by a suffix to the term. 'Automatic Logging Device (EDL)' is the existing interface for issuing instructions and 'Electronic Data Communication Facilities (EDL & EDT)' are the existing interfaces for submitting data, whilst 'Automatic Logging Device (EDL*)' is the new interface for issuing instructions and 'Electronic Data Communication Facilities (EDT*)' is the new interface for submitting data. Therefore six new definitions will be introduced: a parent and two child terms each for ALD and EDCF. As a consequence of formally defining these terms there are several instances throughout the Grid Code document of minor changes to capitalise the newly defined terms.

Electronic Data Communication Facilities
The single replacement for all the Electronic Data Communication Facilities, EDT*, allows the submission of all the data types supported by EDL and EDT plus Ancillary Services Operational Data. EDT* allows data submission over the internet as well as by the existing private networks.

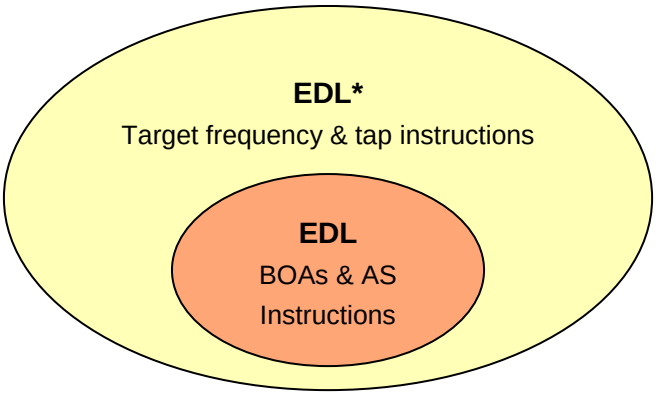


Automatic Logging Devices
Proposed to formally take the meaning of computer facilities at a Control Point capable of receiving Bid-Offer Acceptances and other instructions issued by NGET (via EDL or EDL*).

Electronic Data Communication Facilities
Proposed to formally take the meaning of computer facilities at a Trading or Control Point capable of submitting BM Unit and Ancillary Service data to NGET (via EDL & EDT or EDT*).

Abbreviations
MEL Maximum Export Limit
MIL Maximum Import Limit
PN Physical Notification
BOD Bid-Offer Data
BOA Bid-Offer Acceptance
AS Ancillary Service

Automatic Logging Device
The replacement Automatic Logging Device, EDL*, allows the receipt of all the instructions supported by EDL plus additional Ancillary Service ones.



Go to Glossary and Definitions Grid Code Text

Q1 Do you support introducing definitions for existing terms of Automatic Logging Device and Electronic Data Communication Facilities and associated sub-terms?

Dynamic Parameters

3.4 **Removal of References to Day Ahead Dynamic Parameters:** Day Ahead Dynamic Parameters are no longer used by National Grid and as their submission represents an overhead to market participants, then it is proposed that they are removed from the Grid Code. However, if market participants' existing IT systems or business processes mean that they must continue to send this data to National Grid, then National Grid's systems will continue to accept this data via the existing industry interface of EDT for five years following the implementation of these changes. It is proposed that the relevant section BC1.4.2(e), is removed from the Grid Code.

Go to BC1.4.2(e)

Q2 Do you support the removal of Day Ahead Dynamic Parameters from the Grid Code?

3.5 **Transfer of Dynamic Parameter details to BC2 Appendices:** As the main use of Dynamic Parameters is post gate closure, particularly with the removal of Day Ahead Dynamic Parameters from the Grid Code, it is proposed that the Dynamic Parameter details, currently in BC1 (Appendix 1.5), be transferred to the Appendix of BC2[6].

Go to New BC2 Appendix for Dynamic Parameters

[6] The new Appendix is added to BC2 (currently 'Appendix X' to be attributed a section number on implementation of the modification). Whilst Appendix X is entirely new, for ease of review, only revisions to existing wording (taken from BC1.A.1.5) have been change-marked in red.

Consultation Questions
Consultation questions are highlighted in green. Responses are invited to these questions. Should you disagree with any of the proposed changes please provide reasoning and alternative solutions.

Q3 Are you in favour of moving the definition of Dynamic Parameters from BC1 to BC2?

3.6 **Changes to Dynamic Parameter Attributes:** Since there will be a period of five years when both existing and new industry system interfaces are effective, the Grid Code parameters should be detailed such that both sets are applicable. Two parallel sections are proposed, detailing the attributes of the Dynamic Parameters relevant to communication via existing industry interfaces and via new industry interfaces. These are outlined in BC2.A.X.2 and BC2.A.X.3 respectively. In particular, differences between the system interface facilities are:

- a Control Point can submit up to three Run-Up / Run-Down rates at a minimum of 0.2MW/min using the existing industry interface (EDL), whereas a Control Point or Trading Point can submit up to ten rates at a minimum of 0.02MW/min using the new industry interface (EDT*);

- under the existing industry interface (EDL), Stable Import and Stable Export Limits (SEL and SIL) are submitted as single static MW values, whereas under the new industry interface (EDT*), time-varying MW profiles can be submitted.

Go to New BC2 Appendix for Dynamic Parameters

Q4 Do you support the proposed approach of maintaining parallel sections of text pertaining to existing and new industry interfaces?

Q5 Are you in favour of increasing the maximum number of Run-Up and Run-Down rates from 3 to 10 and reducing the minimum rate from 0.2MW/min to 0.02MW/min?

Q6 Are you in favour of introducing time-varying MW profiles for Stable Export and Stable Import Limits?

3.7 **Clarification of Effective Time:** In the original text, under BC2.5.3.1, it is stated that a submission of Dynamic Parameters from a BM Participant will take effect from time of receipt by National Grid. This statement was valid whilst the Dynamic Parameters consisted only of static point values. However it will no longer apply to SEL and SIL when submissions of time-varying profiles, that may take effect in the future, are enabled. To avoid confusion this indiscriminate statement has been removed and replaced with similar statements, within the introductions to Dynamic Parameters in BC2.A.X.2 and BC2.A.X.3, explicitly indicating the SEL and SIL as exceptions in the case of new EBS interfaces.

Go to New BC2 Appendix for Dynamic Parameters

BC2 Ancillary Service Instructions

3.8 The instructions for Target Frequency have now been classified as Ancillary Service instructions within BC2. This is because Target Frequency is associated with the Ancillary Service of Frequency Response

and because EDL* is capable of issuing Target Frequency instructions electronically. Consequentially, the line covering changes to Target Frequency has moved from Other Operational Instructions BC2.10.2(e) to Ancillary Services BC2.8.1(d).

Go to BC2.8 Ancillary Services

3.9 Appendix 2 of BC2 provides details of the forms of Ancillary Service Instructions that can be communicated via ALD or telephone. Since there are now two types of ALD (EDL and EDL*) a duplicate section has been added (BC2.A.2.5) to detail the form of instructions that can be issued by EDL*. As instructions for Target Frequency can be sent via ALD (EDL*) or telephone their required forms of instructions have been added to the relevant sections (BC2.A.2.5(d) and BC2.A.2.6(c)).

Go to BC2 Appendix 2

3.10 Under Reactive Power the description of Tap Changes has been updated. An Operational Guidance Note[7] was issued in January 2012 specifically relating to instructions issued from National Grid via Fax for Simultaneous Tap Changes. The wording in the description for Tap Changes has been revised for consistency with the details of the latest Guidance Note.

Go to Tap Changes Descriptions

Q7 Do you agree with the amendments to the description of Tap Changes in BC2.A.2.7 (Reactive Power)?

Arrangements for the deviation from zero of BM Units that are operating at zero as a result of Bid-Offer Acceptances

3.11 Text has been introduced into BC2 to detail the arrangements that shall apply for the subsequent deviation of a BM Unit from zero following operation at zero as a result of Bid-Offer Acceptances. This is proposed because situations of this type represent a substantial proportion of all re-scheduling activity, but at present the Grid Code does not detail the arrangements that shall apply. To this a new term Deviation from Zero Time (DZT) has been created to identify the time at which the BM Unit will deviate from zero. This is intended to improve the clarity of this text but is not being introduced as a parameter required for submission. The definition of the Dynamic Parameter Notice to Deviate from Zero in the appendix to BC2 has been revised to also be applicable when the BM Unit's Physical Notification is non-zero.

3.12 First to be outlined are the default arrangements that apply in the absence of any communications between the BM Participant and National Grid. This is illustrated in Figure 1 below. The Notice to Deviate from Zero (NDZ) cannot be greater than the Minimum Zero Time (MZT) as otherwise either the BM Participant would have to be notified of a subsequent deviation from zero before it had commenced operation at zero, or NDZ would effectively over-ride MZT. In this situation, the BM Unit would

[7] http://www.nationalgrid.com/NR/rdonlyres/71E25EA8-F172-4B13-AFDD-91D399873F16/52391/FaxInstructionsforSimultaneousTapChangeIssue310Jan2012.pdf

deviate from zero at MZT minutes after the deviation to zero and National Grid would issue Bid-Offer Acceptances to effect this.

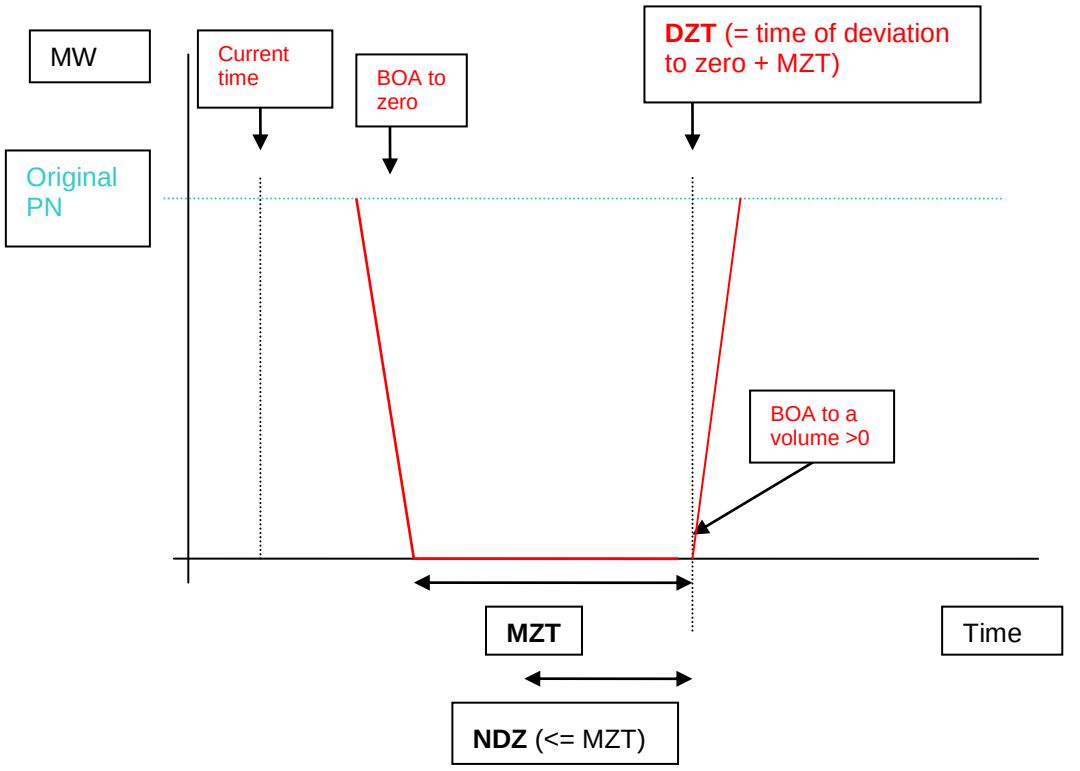


Figure 1: Default arrangements where BM Unit deviates from zero MZT minutes after deviation to zero

3.13 Secondly, the process by which National Grid would, if required, extend the operation at zero time of a BM Unit beyond the most recently established DZT is outlined. By no later than NDZ minutes prior to the DZT, National Grid would inform the BM Participant that the BM Unit period of operation at zero requires extending by communicating a new DZT. Once notified of this the BM Participant may re-declare the NDZ of the BM Unit such that it is applicable to the revised DZT, but that still allows the new DZT to be achieved. This is demonstrated in Figure 2 below.

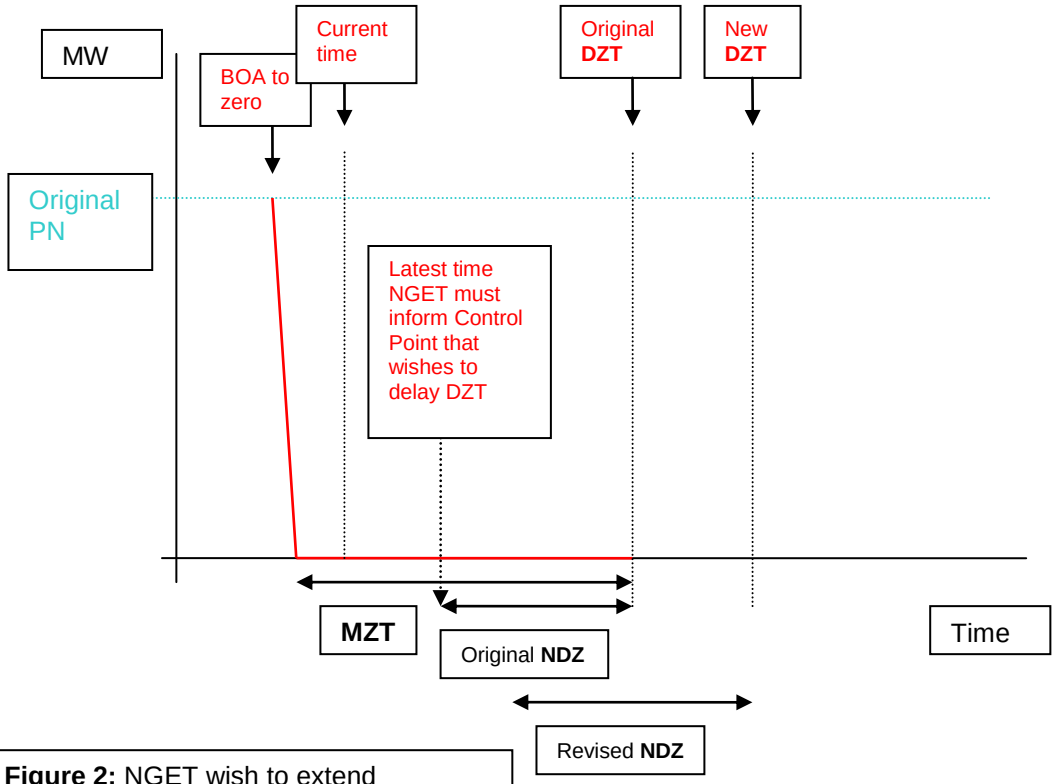


Figure 2: NGET wish to extend operation at zero beyond latest DZT

Go to BC2.5.2.6 Arrangements for the deviation from zero of BM Units that are operating at zero as a result of Bid-Offer Acceptances

Q8 Do you agree with the proposals to detail the arrangements that shall apply when deviating from zero?

Fax Forms for Reactive Power Capability and Availability of Frequency Sensitive Mode

3.14 Appendices 3 and 4 of BC2 contain the fax forms used by BM Participants to inform National Grid of changes to their Reactive Power capability and Frequency Response availability respectively. The enduring EBS interface solution will be for Reactive Power Capability and Frequency Response availability to be submitted electronically. The relevant information to be communicated has been reviewed in the EBSG Workgroup meetings, using the fax forms as a means of discussing and agreeing the information to be exchanged. Whilst electronic submission of data is intended to be the enduring solution, submission of information to National Grid via fax forms will continue to be supported, therefore the relevant fax forms will be retained and updated in the Grid Code through revisions to BC2 Appendices 3 and 4.

3.15 The following changes have been proposed to Reactive Power Appendix 3, Annexure 2 and 3:

- Clarification that a revision to the reactive power capability pertains to the relevant Ancillary Services Agreement.

- Changing the column headings to minimum and maximum capability rather than lead and lag and also giving lag capabilities a positive sign and lead a negative sign. This is to remove the ambiguity that is present in the current forms, for example, if a BM Unit is constrained to operate in the lead range, at present they must enter the least leading value in the lag column which has caused confusion as to whether the value entered is lead or lag and errors in system operation and settlement.

Go to Appendix 3 – Annexure 2
Go to Appendix 3 – Annexure 3

Q9 Does changing the column heading from Lead and Lag to Minimum and Maximum and indicating lag capability by a positive sign and lead by a negative sign remove ambiguity e.g. when the unit or module has no capability in the lagging range?

- Removal of sections on tap changer restrictions since the information is of limited value and the comments field can be used to identify if the cause is a tap changer restriction. Any restriction on the reactive power capability of the unit, module or dc converter should be reflected in the minimum and maximum capability data submitted as per the proposed BC2.A.3.2.

Q10 Do you agree with removing the section on generating unit step-up transformer tap restrictions and instead incorporating any factors in the minimum and maximum MVAr capability data?

- Removal of Predicted End Time/Date since this field would be of limited value as a further confirmation fax would be required in any case. The comments field can be used to identify a predicted end time if known.
- Removal of the section where information can be provided on the capability of the Commercial Boundary, as National Grid calculates this from the stator terminal data, the Ancillary Service Agreement and week 24 data submissions.

Q11 For the fax form that applies to Generating Units excluding Power Park Modules and DC Converters, do you agree with removing the optional section on capability at the commercial boundary?

3.16 The following further changes have been proposed to Reactive Power Appendix 3, Annexure 3 only:

- Replacement of Power Park Units with Power Park Modules as the Mandatory Service Agreement details reactive power capability at this level.
- Replacement of the various options of the point at which reactive capability is specified with Commercial Boundary which is consistent

with the Mandatory Service Agreements that have been agreed for Power Park Modules.

Go to Appendix 3 – Annexure 3

Q12 On the fax form for Power Park Modules and DC Converters, do you agree with replacing all the various alternatives for the location at which the reactive power capability is specified with the Commercial Boundary?

Q13 Do you have any drafting comments on the changes to the Reactive Capability fax forms?

3.17 The following changes have been proposed to Frequency Response Appendix 4:

- Introduction of the option to detail the availability of individual contract modes for a given BM Unit, recognising that some BM Units have multiple frequency response contract modes of which some may be available and unavailable at a given time.

Go to Appendix 3 - Annexure 1

Q14 Do you agree that the frequency sensitive mode fax form should support submissions of availability on a per contract mode basis, in addition to all contract modes?

- Removal of field for cause of unavailability of Frequency Sensitive Mode since this information can be included in the comments field.
- Removal of Unavailability Predicted End Time/Date for the same reasoning as paragraph 3.16, bullet 4 above.

Q15 Do you have any drafting comments on the changes to the Frequency Sensitive Mode fax form?

3.18 In addition to the above, a number of 'housekeeping' changes have been made to the forms, e.g. changing MVAr references to 'Reactive Power Capability' and updating the addressee to 'National Electricity Transmission System Control Centre'.

Proposed Implementation Timescales

3.19 Following an Authority decision, National Grid proposes that GC0068 and the associated changes to the Data Validation, Consistency and Defaulting Rules be implemented on or around the date of the go-live of the Electricity Balancing System as the changes are associated with the introduction of the new system. The implementation date for EBS is yet to be determined but is planned for the third quarter of 2014. Advance notice of implementation will be provided by National Grid. For the latest view of timescales parties should refer to the latest newsletter or project update available at the link below:

http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/workinggroups/EBS+IT+Subgroup/

3.20 For the purposes of identifying the appropriate interfaces for installation and operation at a given time, Section CC.6.5.8 specifies the latest date by which BM Participants should have migrated to the new interfaces. This date is currently left as a placeholder, stating 'implementation date + 5 years' that has previously been agreed with the industry, to be populated when the Grid Code changes are executed and the actual implementation date is known.

- Implementation of Grid Code changes will take effect with EBS go-live
- Six months after implementation, National Grid will offer market participants the opportunity to move to the new industry interfaces EDT* and EDL*
- From implementation National Grid will support the existing market participant interfaces of EDL and EDT for five years as per industry responses to consultation of 11 October 2010.

Go to CC.6.5.8

Q16 Do you support the proposed implementation approach?

Q17 Do you agree with the proposed timescales for implementation of the Grid Code changes?

4 Summary of Workgroup Discussions

Purpose & Scope of Workgroup

4.1 At the January 2013 GCRP, National Grid presented pp13/03 and pp13/04, both of which proposed that the Electricity Balancing System Workgroup (EBSG) examine the respective issues, taking solutions forward to Industry Consultation. The Panel agreed that the papers be discussed at the EBSG meetings progressed to consultation thereafter.

4.2 A copy of the Terms of Reference for EBSG is available at:

http://www.nationalgrid.com/NR/rdonlyres/D0B17CC6-C84A-47DF-8720-71B014EE5586/49434/EBSGToRpaperGCRPv10.pdf

4.3 Minutes from the EBSG can be found on the National Grid website at:

http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/workinggroups/ElectricityBalancingSystemGroup/

4.4 With regards to this consultation, the Workgroup discussed and made recommendations on the following key areas:

- The content of information to be communicated electronically and to be presented on the fax forms. In particular whether frequency response data should be submitted pertaining to a 'Module' or Generating Unit' basis.
- How the Dynamic Parameter text should be structured with regards to pre- and post- EBS interface guidelines. In particular, whether to embed parallel rules for existing and new industry interfaces within the body of the text or to maintain distinct separation of legacy and new rules. The option supported by the EBSG is to maintain a separate distinction on the basis that removal of legacy references will be easier to implement.
- The EBSG discussed placement of the Dynamic Parameters definitions which are currently contained in BC1. The recommendation of the group is that, particularly given the formal removal of references to the redundant Day Ahead Dynamic Parameters, it is now more appropriate for Dynamic Parameters to be held in BC2 for Post-Gate Closure arrangements.
- For the definitions, various terms have been discussed to reference pre-EBS (legacy) and post-EBS interface systems. In recommending those contained in this document the EBSG sought to enhance clarity and provide an enduring solution (that will continue to be applicable once legacy systems have expired) which should be logical for users approaching the relevant text for the first time. Hence Automatic Logging Device and Electronic Data Communication Facilities are given formal definitions in the Glossary and Definitions and the suffixes (EDL & EDT / EDL* / EDT*) used to identify the specific interface types.

5 Impact & Assessment

Impact on the Grid Code

5.1 The revisions to parameters, instructions and fax forms as detailed above, require amendments to the following parts of the Grid Code:

- **Glossary and Definitions:** Introduction of 6 new definitions to distinguish various computer facility types. Consequential changes (reference and capitalisation) to 'Other Relevant Data' and 'Planned Maintenance Outage'. 'Simultaneous Tap Change' revised for clarity.
- **General Conditions:** Revised to reflect the new interface specifications relevant to the various computer facility types. As the Interface Specifications for the new web/message service interfaces are yet to be published, titles have been provided 'Not Used' currently as placeholders.
- **Balancing Code 1:** Revisions to text as described in Section 3. In particular, removal of Day-Ahead Dynamic Parameters references and removal of Dynamic Parameters from Appendix 1.5.
- **Balancing Code 2:** Revisions to text as described in Section 3. In particular, addition of Dynamic Parameters to Appendices.
- **Connection Conditions:** Capitalisation of newly defined terms under Electronic Data Communication Facilities CC.6.5.8.
- **Data Registration Code:** Amendments to Schedule 8 to reflect retirement of Day Ahead Dynamic Parameters.
- **Operating Code:** Consequential reference change to OC5.5.1.3.
- **Planning Code:** Consequential reference changes to PC Appendix A.3.

5.2 The text required to give effect to the proposal is contained in Annex 1 of this document.

Go to Annex 1

Q18 Do you support the changes described in this consultation?

Q19 Do you have any drafting comments on the legal text?

Impact on National Electricity Transmission System (NETS)

5.3 The proposal modification has a neutral impact on this objective.

Impact on Grid Code Users

5.4 The proposals will have the following impact on those Users who participate in the Balancing Mechanism and/or provide Ancillary Services:

- Provide them with a greater range of options to submit BM Unit and Ancillary Services Operational data to National Grid, including lower cost options using web-pages and internet communications
- Introduces capabilities for some existing Ancillary Services Operational data to be submitted via electronic means from faxes
- Facilitates electronic data exchange of certain Ancillary Service instructions

- Offers a greater number of run-up and run-down rates and a lower minimum ramp rate to better model the characteristics of their BM Units.
- Allows the submission of time-varying Stable Export and Import Limits which will better reflect the time-varying nature of such data for certain types of BM Unit.
- Removal of Day Ahead Dynamic Parameters from the Grid Code
- By documenting the arrangements for the deviation from zero of BM Units that are operating at zero as a result of Bid-Offer Acceptances, this will ensure that the arrangements are clear.
- By 5 years after the implementation of these proposals and consistent with responses to previous industry consultations, BM Participants will have to amend their systems to use the new electronic interfaces

Impact on Greenhouse Gas Emissions

5.5 National Grid has not identified any impacts that the proposed modification will have on Greenhouse Gas emissions.

Assessment against Grid Code Objectives

5.6 National Grid considers that GC0068 would better facilitate the Grid Code objectives as follows:

(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;

Enhancements to the range of data exchanged, that these proposals facilitate, would improve the precision with which National Grid can model capabilities of BM Units on the system promoting the efficient dispatch.

(ii) to facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);

A number of the proposed changes would enhance the operation of the Balancing Mechanism and the call-off of Ancillary Services. In particular, the following amendments would promote a shared understanding rather than relying on knowledge of custom and practice : transfer of Dynamic Parameter text to BC2 should mitigate potential confusion regarding information requirements; detailing the Notice to Deviate from Zero arrangements that shall apply when a BM Unit recommences generation following shutdown by National Grid; revisions to the Tap Changes text; and simplifications to the Reactive and Frequency Response Fax forms. This shared understanding should mitigate knowledge barriers to entry and facilitate competition in the generation of electricity. The removal of Day Ahead Dynamic Parameters should also reduce overheads on BM Participants and thus barriers to entry.

The increase in the number of Run-Up and Run-Down Rates and the introduction of time-varying SEL/SIL has a positive impact on this objective as it allows certain types of BM Participant, principally CCGT Modules, to better model their complex run-up and run-down profiles thus reducing their exposure to imbalance charges and facilitating competition in the generation of electricity.

The efficiency gains realised from the increased information available to National Grid should lower balancing costs to market participants and thereby support competition in electricity generation and supply.

(iii) subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole; and

The improved capabilities, provided by the Electricity Balancing System and captured in these changes, will allow Generators to submit information to National Grid with increased accuracy, greater detail and improved timeliness. In particular: run-up profiles can be modelled more precisely; Stable Import and Export Limits can be submitted in advance, rather than the current situation of changing static values with immediate effect; National Grid can issue electronic rather than telephone instructions of voltage control or target frequency changes; and simplification to Reactive and Frequency Response Fax forms will ensure correct data is used in assessing the security of the NETS. Embedding these proposed changes would better facilitate this objective by improving precision and capability of information exchange between National Grid and Generators in the operation of the Balancing Mechanism.

(iv) to efficiently discharge the obligations imposed upon the licensee by this licence and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency.

The proposal has a neutral impact on this objective

Data, Validation, Consistency and Defaulting Rules

An associated document referenced by the Grid Code that defines the rules for data validation and consistency checking which are applied to Balancing Mechanism data received from Trading Agents and Control Points under the terms of the Grid Code. It also covers defaulting rules to be applied in the absence of expected data.

Q20 Do you believe that GC0068 better facilitates the applicable Grid Code objectives (i), (ii) and (iii)?

Impact on core industry documents

5.7 These proposals will require modifications to the Balancing and Settlements Code to ensure the Dynamic Data Set detailed in the BSC are aligned to those set out in the Grid Code. This has been raised in BSC modification P297.

5.8 Section 6.8 of the CUSC refers to provisions under the Grid Code for interface facilities required of BSC Trading Parties and BM Participants (referencing Connection Conditions 6.5.8). It is anticipated that some minor consequential amendments will be required to the CUSC to reflect these Grid Code changes. To ensure consistency between Codes, it is

recommended that the consequential CUSC changes are postponed until such a time that the implementation date of these proposed Grid Code changes is determined.

Impact on other industry documents

5.9 These proposals will impact the Data Validation, Consistency & Defaulting Rules, which is subject to the Grid Code governance. In parallel with this consultation National Grid are issuing an associated informal consultation detailing proposed changes to the Data Validation, Consistency and Defaulting Rules.

Implementation

5.10 EBS is currently planned to go-live in the third quarter of 2014. Following an Authority decision, National Grid proposes that GC0068 and the associated changes to the Data Validation, Consistency and Defaulting Rules be implemented on or around the date of the go-live of the Electricity Balancing System as the changes are associated with the introduction of the new system. National Grid proposes that the implementation date be agreed once the go-live date of the Electricity Balancing System has been confirmed.

6 Consultation Responses

6.1 Views are invited upon the proposals outlined in this consultation, which should be received by **3 December 2013**.

Your formal responses may be emailed to:

grid.code@nationalgrid.com

6.2 Responses are invited to the following questions; should you disagree with any of the proposed changes please provide reasoning and alternative solutions.

Q1 Do you support introducing definitions for existing terms of Automatic Logging Device and Electronic Data Communication Facilities and associated sub-terms?

Q2 Do you support the removal of Day Ahead Dynamic Parameters from the Grid Code?

Q3 Are you in favour of moving the definition of Dynamic Parameters from BC1 to BC2?

Q4 Do you support the proposed approach of maintaining parallel sections of text pertaining to existing and new industry interfaces?

Q5 Are you in favour of increasing the maximum number of Run-Up and Run-Down rates from 3 to 10 and reducing the minimum rate from 0.2MW/min to 0.02MW/min?

Q6 Are you in favour of introducing time-varying MW profiles for Stable Export and Stable Import Limits?

Q7 Do you agree with the amendments to the description of Tap Changes in BC2.A.2.7 (Reactive Power)?

Q8 Do you agree with the proposals to detail the arrangements that shall apply when deviating from zero?

Q9 Does changing the column heading from Lead and Lag to Minimum and Maximum and indicating lag capability by a positive sign and lead by a negative sign remove ambiguity e.g. when the unit or module has no capability in the lagging range?

Q10 Do you agree with removing the section on generating unit step-up transformer tap restrictions and instead incorporating any factors in the minimum and maximum MVAr capability data?

Q11 For the fax form that applies to Generating Units excluding Power Park Modules and DC Converters, do you agree with removing the optional section on capability at the commercial boundary?

Q12 On the fax form for Power Park Modules and DC Converters, do you agree with replacing all the various alternatives for the location at which the reactive power capability is specified with the Commercial Boundary?

Q13 Do you have any drafting comments on the changes to the Reactive Capability fax forms?

Q14 Do you agree that the frequency sensitive mode fax form should support submissions of availability on a per contract mode basis, in addition to all contract modes?

Q15 Do you have any drafting comments on the changes to the Frequency Sensitive Mode fax form?

Q16 Do you support the proposed implementation approach?

Q17 Do you agree with the proposed timescales for implementation of the Grid Code changes?

Q18 Do you support the changes described in this consultation?

Q19 Do you have any drafting comments on the legal text?

Q20 Do you believe that GC0068 better facilitates the applicable Grid Code objectives (i), (ii) and (iii)?

6.3 If you wish to submit a confidential response please note the following:

(i) Information provided in response to this consultation will be published on National Grid's website unless the response is clearly marked "Private & Confidential", we will contact you to establish the extent of the confidentiality. A response marked "Private and Confidential" will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Grid Code Review Panel or the industry and may therefore not influence the debate to the same extent as a non confidential response.

(ii) Please note an automatic confidentiality disclaimer generated by your IT System will not in itself, mean that your response is treated as if it had been marked "Private and Confidential".

Annex 1 - Proposed Legal Text

This section contains the proposed legal text to give effect to the proposals. The proposed new text is in red and is based on Grid Code Issue 5 Revision 04.

Glossary and Definitions

Automatic Logging Device	The computer facility at a **Control Point** capable of receiving **Bid-Offer Acceptances** and certain other instructions issued by **NGET** in accordance with **BC2**. This may be an **Automatic Logging Device (EDL)** or an **Automatic Logging Device (EDL*)**.
Automatic Logging Device (EDL*)	An **Automatic Logging Device** whose interface specifications are listed under the heading of **Automatic Logging Device (EDL*)** Interface Specifications in the **Electrical Standards**.
Automatic Logging Device (EDL)	An **Automatic Logging Device** whose interface specifications are listed under the heading of **Automatic Logging Device (EDL)** Interface Specifications in the **Electrical Standards**.
Dynamic Parameters	Those parameters listed in Appendix X ~~1~~ to **BC2** ~~**BC1**~~ under the heading ~~**BM Unit Data –**~~ **Dynamic Parameters**.
Data Validation, Consistency and Defaulting Rules	The rules relating to validity and consistency of data, and default data to be applied, in relation to data submitted under the **Balancing Codes**, to be applied by **NGET** under the **Grid Code** as set out in the document "Data Validation, Consistency and Defaulting Rules" - Issue ~~9~~8, dated [date tbd] ~~25~~th ~~January~~ ~~2012~~. The document is available on the National Grid website or upon request from **NGET**.
Electronic Data Communication Facilities	The computer facilities that allow a **Trading Point** or **Control Point** to submit specified **BM Unit Data** and **Ancillary Services** data to **NGET** in accordance with **BC1** and **BC2**. These may be **Electronic Data Communication Facilities (EDL & EDT)** or **Electronic Data Communication Facilities (EDT*)**.
Electronic Data Communication Facilities (EDL & EDT)	Those **Electronic Data Communication Facilities** whose interface specifications are listed under the heading of Electronic Data Communication Facilities (EDL & EDT) Interface Specifications in the **Electrical Standards**.
Electronic Data Communication Facilities (EDT*)	Those **Electronic Data Communication Facilities** whose interface specifications are listed under the heading of Electronic Data Communication Facilities (EDT*) Interface Specifications in the **Electrical Standards**.
Other Relevant Data	The data listed in BC1.4.2(e~~f~~) under the heading **Other Relevant Data**.
Planned Maintenance Outage	An outage of **NGET's Electronic Data Communication Facilities** ~~electronic data communication facilities~~ as provided for in CC.6.5.8 ~~and **NGET's** associated computer facilities~~ of which normally at least 5 days notice is given, but in any event of which at least twelve hours notice has been given by **NGET** to the **User** and which is anticipated to last no longer than 2 hours. The length of such an outage may in exceptional circumstances be extended where at least 24 hours notice has been given by **NGET** to the **User**. It is anticipated that normally any planned

outage would only last around one hour.

Simultaneous Tap Change

A tap change implemented on the generator step-up transformers of **Synchronised Gensets** in accordance with Appendix 2 of **BC2**, that is effected simultaneously by **Generators** in response to an instruction from **NGET** issued ~~simultaneously~~ to the relevant **Power Stations**. ~~The instruction, preceded by advance notice, must be effected as soon as possible, and in any event within one minute of receipt from **NGET** of the instruction.~~

Annex to the General Conditions
The **Electrical Standards** are as follows:

(a) **Electrical Standards** applicable in England and Wales

The Relevant Electrical Standards Document	Issue 1.0	09-Jan-2006
Control Telephony Electrical Standard	Issue 1.0	17-Sept-2007

(b) The following specifications for **Automatic Logging Devices** and **Electronic Data Communication Facilities** ~~electronic data communications facilities with reference to EDT and EDL facilities~~.

Electronic Data Communication Facilities (EDL & EDT)

EDT Interface Specification	Issue 4
EDT Submitter Guidance Note	Dec-01
EDL Message Interface Specifications	Issue 4
EDL Interface Specification Guidance Note	Oct-01
EDL Instruction Interface Valid Reason Codes	Issue 2

Automatic Logging Devices (EDL)

EDL Message Interface Specifications	Issue 4
EDL Interface Specification Guidance Note	Oct-01
EDL Instruction Interface Valid Codes	Issue 2

Electronic Data Communication Facilities (EDT*)

Not Used

Automatic Logging Devices (EDL*)

Not Used

BALANCING CODE NO. 1
(BC1)

PRE GATE CLOSURE PROCESS

CONTENTS

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

BC1.1 INTRODUCTION

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

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

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

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

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

BC1.2 OBJECTIVE

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

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

(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 **BC1** is required:

(i) to each **Generating Unit**, or

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

BC1.3 SCOPE

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

(a) **BM Participants**;

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

(c) **Network Operators**.

BC1.4 SUBMISSION OF DATA

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

BC1.4.1 Communication With Users

(a) Submission of **BM Unit Data** and **Generating Unit Data** by **Users** to **NGET** specified in BC1.4.2 to BC1.4.4 (with the exception of BC1.4.2(~~fe~~)) and the **Dynamic Parameters** is to be by use of **Electronic Data Communication Facilities** ~~electronic data communications facilities~~, as provided for in CC.6.5.8. However, data specified in BC1.4.2(c) and **Dynamic Parameters** ~~BC1.4.2(e)~~ only, may be submitted by telephone or fax.

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

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

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

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

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

(iii) no data will be transferred from **NGET** to the **BMRA** until the **Electronic Data Communication Facilities** ~~communication facilities~~ are re-established.

BC1.4.2 Day Ahead Submissions

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

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

(a) Physical Notifications

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

(1) **BM Units**:

(i) with a **Demand Capacity** with a magnitude of 50MW or more in **NGET's Transmission Area** or 10MW or more in **SHETL's Transmission** Area or 30MW or more in **SPT's Transmission Area**; or

(ii) comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC1.2) and/or **CCGT Modules** and/or **Power Park Modules** in each case at **Large Power Stations**, **Medium Power Stations** and **Small Power Stations** where such **Small Power Stations** are directly connected to an **Offshore Transmission System**; or

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

and

(2) each **Generating Unit** where applicable under BC1.2.

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

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

These **Physical Notifications** provide, amongst other things, indicative **Synchronising** and **De-Synchronising** times to **NGET** in respect of any **BM Unit** comprising a **Generating Unit** (as defined in the Glossary and Definitions and not limited by BC1.2) or **CCGT Module** or **Power Park Module**, and for any **Generating Units**, and provide an indication of significant **Demand** changes in respect of other **BM Units**.

(b) Quiescent Physical Notifications

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

(c) Export and Import Limits

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

Export and Import Limits respectively represent the maximum export to or import from the **National Electricity Transmission System** for a **BM Unit** and a **Generating Unit** and are the maximum levels that the **BM Participant** wishes to make available and must be prepared in accordance with **Good Industry Practice**.

(d) Bid-Offer Data

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

~~(e) Dynamic Parameters (Day Ahead)~~

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

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

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

(e)~~(f)~~ Other Relevant Data

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

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

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

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

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

(v) details of any other factors which **NGET** may take account of when issuing **Bid-Offer Acceptances** for a **BM Unit** (e.g., **Synchronising** or **De-Synchronising** Intervals);

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

(vii) in the case of a **Power Park Module**, a **Power Park Module Availability Matrix** as described in **BC1** Appendix 1.

(f)~~(g)~~ Joint BM Unit Data

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

BC1.4.3 Data Revisions

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

BC1.4.4 Receipt Of BM Unit Data Prior To Gate Closure

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

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

BC1.4.5 BM Unit Data Defaulting, Validity And Consistency Checking

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

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

(b) for all other **BM Units** or **Generating Units**, the defaulting rules will set some or all of the data for that **Operational Day** to the values prevailing in the current **Operational Day**.

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

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

BC1.4.6 Special Provisions Relating To Interconnector Users

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

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

BC1.5 INFORMATION PROVIDED BY NGET

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

BC1.5.1 Demand Estimates

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

BC1.5.2 Indicated Margin And Indicated Imbalance

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

BC1.5.3 Provision Of Updated Information

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

BC1.5.4 Reserve And Inadequate System Margin

Contingency Reserve

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

Operating Reserve

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

Inadequate System Margin

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

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

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

(f) The monitoring will be conducted on a regular basis and a revised **National Electricity Transmission System Warning** - **Inadequate System Margin** or **High Risk of Demand Reduction** may be sent out from time to time, including within the post **Gate Closure** phase. This will reflect any changes in **Physical Notifications** and **Export and Import Limits** which have been notified to **NGET**, and will reflect any **Demand Control** which has also been so notified. This will also reflect generally any changes in the forecast **Demand** and the relevant **Operating Margin**.

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

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

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

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

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

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

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

(ii) Localised Negative Reserve Active Power Margin

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

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

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

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

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

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

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

BC1.6 SPECIAL PROVISIONS RELATING TO NETWORK OPERATORS

BC1.6.1 User System Data From Network Operators

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

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

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

(iii) where applicable, updated best estimates of **Maximum Export Capacity** and **Maximum Import Capacity** and **Interface Point Target Voltage/Power Factor** for any **Interface Point** connected to its **User System** including any requirement for post-fault actions to be implemented on the relevant **Offshore Transmission System** by **NGET**.

(b) The form of the submission will be:

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

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

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

BC1.6.2 Notification Of Times To Network Operators

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

BC1.7 SPECIAL ACTIONS

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

(a) For a **Generator** special actions will generally involve a **Load** change or a change of required Notice to Deviate from Zero NDZ, in a specific timescale on individual or groups of **Gensets**.

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

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

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

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

BC1.8 PROVISION OF REACTIVE POWER CAPABILITY

BC1.8.1 Under certain operating conditions **NGET** may identify through its **Operational Planning** that an area of the **National Electricity Transmission System** may have insufficient **Reactive Power** capability available to ensure that the operating voltage can be maintained in accordance with **NGET's Licence Standards**.

In respect of **Onshore Synchronous Generating Unit(s)**

(i) that have a **Connection Entry Capacity** in excess of **Rated MW** (or the **Connection Entry Capacity** of the **CCGT Module** exceeds the sum of **Rated MW** of the **Generating Units** comprising the **CCGT Module**); and

(ii) that are not capable of continuous operation at any point between the limits 0.85 **Power Factor** lagging and 0.95 **Power Factor** leading at the **Onshore Synchronous Generating Unit** terminals at **Active Power** output levels higher than **Rated MW**; and

(iii) that have either a **Completion Date** on or after 1st May 2009, or where its **Connection Entry Capcity** has been increased above **Rated MW** (or the **Connection Entry Capacity**of the **CCGT Module** has increased above the sum of **Rated MW** of the **Generating Units** comprising the **CCGT Module**) such increase takes effect on or after 1st May 2009; and

(iv) that are in an area of potentially insufficient **Reactive Power** capability as described in this clause BC1.8.1,

NGET may instruct the **Onshore Synchronous Generating Unit(s)** to limit its submitted **Physical Notifications** to no higher than **Rated MW** (or the **Active Power** output at which it can operate continuously between the limits 0.85 **Power Factor** lagging to 0.95 **Power Factor** leading at its terminals if this is higher) for a period specified by **NGET**. Such an instruction must be made at least 1 hour prior to **Gate Closure**, although **NGET** will endeavour to give as much notice as possible. The instruction may require that a **Physical Notification** is re-submitted. The period covered by the instruction will not exceed the expected period for which the potential deficiency has been identified. Compliance with the instruction will not incur costs to **NGET** in the **Balancing Mechanism**. The detailed provisions relating to such instructions will normally be set out in the relevant **Bilateral Agreement**.

APPENDIX 1 - BM UNIT DATA

BC1.A.1 More detail about valid values required under the **Grid Code** for **BM Unit Data** and **Generating Unit Data** may be identified by referring to the **Data Validation**, **Consistency and Defaulting Rules**. In the case of **Embedded BM Units** and **Generating Units** the **BM Unit Data** and the **Generating Unit Data** shall represent the value at the relevant **Grid Supply Point**. Where data is submitted on a **Generating Unit** basis, the provisions of this Appendix 1 shall in respect of such data submission apply as if references to **BM Unit** were replaced with **Generating Unit**. Where **NGET** and the relevant **User** agree, submission on a **Generating Unit** basis (in whole or in part) may be otherwise than in accordance with the provisions of the Appendix 1.

BC1.A.1.1 Physical Notifications

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

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

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

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

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

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

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

BC1.A.1.2 Quiescent Physical Notifications (QPN)

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

An example of the format of data is shown below.

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

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

BC1.A.1.3 Export And Import Limits

BC1.A.1.3.1 Maximum Export Limit (MEL)

A series of MW figures and associated times, making up a profile of the maximum level at which the **BM Unit** may be exporting (in MW) to the **National Electricity Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate.

BC1.A.1.3.2 Maximum Import Limit (MIL)

A series of MW figures and associated times, making up a profile of the maximum level at which the **BM Unit** may be importing (in MW) from the **National Electricity Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate.

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

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

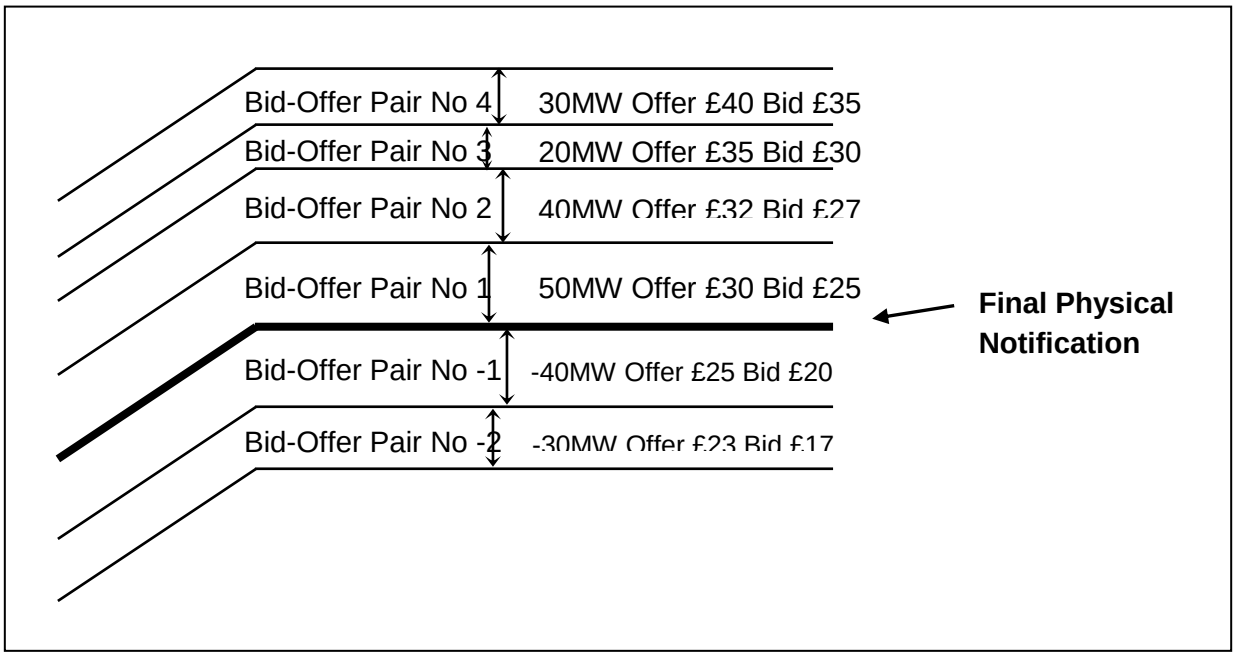
BC1.A.1.4 Bid-Offer Data

For each **BM Unit** for each **Settlement Period**:	Up to 10 Bid-Offer Pairs as defined in the **BSC**.

An example of the format of data is shown below.

Data	Name	BMU name	Time from	Time to	Pair ID	From Level (MW)	To Level (MW)	Offer (£/MWh)	Bid (£/MWh)
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	4	30	30	40	35
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	3	20	20	35	30
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	2	40	40	32	27
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	1	50	50	30	25
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	-1	-40	-40	25	20
BO	TAGENT	BMUNIT0	2000-10-28	2000-10-28	-2	-30	-30	23	17

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



6.4

~~BC1.A.1.5 Dynamic Parameters~~

~~The **Dynamic Parameters** comprise:~~

- ~~Up to three Run-Up Rate(s) and up to three Run-Down Rate(s), expressed in MW/minute and associated Run-Up Elbow(s) and Run-Down Elbow(s), expressed in MW for output and the same for input. It should be noted that Run-Up Rate(s) are applicable to a MW figure becoming more positive;~~
- ~~Notice to Deviate from Zero (NDZ) output or input, being the notification time required for a **BM Unit** to start importing or exporting energy, from a zero **Physical Notification** level as a result of a **Bid-Offer Acceptance**, expressed in minutes;~~
- ~~Notice to Deliver Offers (NTO) and Notice to Deliver Bids (NTB), expressed in minutes, indicating the notification time required for a **BM Unit** to start delivering Offers and Bids respectively from the time that the **Bid-Offer Acceptance** is issued. In the case of a **BM Unit** comprising a **Genset**, NTO and NTB will be set to a maximum period of two minutes;~~
- ~~Minimum Zero Time (MZT), being either the minimum time that a **BM Unit** which has been exporting must operate at zero or be importing, before returning to exporting or the minimum time that a **BM Unit** which has been importing must operate at zero or be exporting before returning to importing, as a result of a **Bid-Offer Acceptance**, expressed in minutes;~~
- ~~Minimum Non-Zero Time (MNZT), expressed in minutes, being the minimum time that a **BM Unit** can operate at a non-zero level as a result of a **Bid-Offer Acceptance**;~~
- ~~Stable Export Limit (SEL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, export to the **National Electricity Transmission System**;~~
- ~~Stable Import Limit (SIL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, import from the **National Electricity Transmission System**;~~
- ~~Maximum Delivery Volume (MDV), expressed in MWh, being the maximum number of MWh of Offer (or Bid if MDV is negative) that a particular **BM Unit** may deliver within the associated Maximum Delivery Period (MDP), expressed in minutes, being the maximum period over which the MDV applies.~~
- ~~Last Time to Cancel Synchronisation, expressed in minutes with an upper limit of 60 minutes, being he notification time required to cancel a **BM Unit's** transition from operation at zero. This parameter is only applicable where the transition arises either from a **Physical Notification** or, in the case where the **Physical Notification** is zero, a **Bid-Offer Acceptance**. There can be up to three Last Time to Cancel Synchronisation(s) each applicable for a range of values of Notice to Deviate from Zero.~~

BC1.A.1.~~5~~6 CCGT Module Matrix

BC1.A.1. ~~5~~6.1 **CCGT Module Matrix** showing the combination of **CCGT Units** running in relation to any given MW output, in the form of the diagram illustrated below. The **CCGT Module Matrix** is designed to achieve certainty in knowing the number of **CCGT Units** synchronised to meet the **Physical Notification** and to achieve a **Bid-Offer Acceptance**.

BC1.A.1. ~~5~~6.2 In the case of a **Range CCGT Module**, and if the **Generator** so wishes, a request for the single **Grid Entry Point** at which power is provided from the **Range CCGT Module** to be changed in accordance with the provisions of BC1.A.1.~~5~~6.4 below:

CCGT Module Matrix example form

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

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

BC1.A.1. ~~5~~6.3 In the absence of the correct submission of a **CCGT Module Matrix** the last submitted (or deemed submitted) **CCGT Module Matrix** shall be taken to be the **CCGT Module Matrix** submitted hereunder.

BC1.A.1. ~~5~~6.4 The data may also include in the case of a **Range CCGT Module**, a request for the **Grid Entry Point** at which the power is provided from the **Range CCGT Module** to be changed with effect from the beginning of the following **Operational Day** to another specified single **Grid Entry Point** (there can be only one) to that being used for the current **Operational Day**. **NGET** will respond to this request by 1600 hours on the day of receipt of the request. If **NGET** agrees to the request (such agreement not to be unreasonably withheld), the **Generator** will operate the **Range CCGT Module** in accordance with the request. If **NGET** does not agree, the **Generator** will, if it produces power from that **Range CCGT Module**, continue to provide power from the **Range CCGT Module** to the **Grid Entry Point** being used at the time of the request. The request can only be made up to 1100 hours in respect of the following **Operational Day**. No subsequent request to change can be made after 1100 hours in respect of the following **Operational Day**. Nothing in this paragraph shall prevent the busbar at the **Grid Entry Point** being operated in separate sections.

BC1.A.1. ~~5~~6.5 The principles set out in PC.A.3.2.3 apply to the submission of a **CCGT Module Matrix** and accordingly the **CCGT Module Matrix** can only be amended as follows:

(a) Normal CCGT Module

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

(b) Range CCGT Module

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

BC1.A.1. ~~5~~6.6 In the case of a **CCGT Module Matrix** submitted (or deemed to be submitted) as part of the other data for **CCGT Modules**, the output of the **CCGT Module** at any given instructed MW output must reflect the details given in the **CCGT Module Matrix**. It is accepted that in cases of change in MW in response to instructions issued by **NGET** there may be a transitional variance to the conditions reflected in the **CCGT Module Matrix**. In achieving an instruction the range of number of **CCGT Units** envisaged in moving from one MW output level to the other must not be departed from. Each **Generator** shall notify **NGET** as soon as practicable after the event of any such variance. It should be noted that there is a provision above for the **Generator** to revise the **CCGT Module Matrix**, subject always to the other provisions of this **BC1**;

BC1.A.1. ~~5~~6.7 Subject as provided above, **NGET** will rely on the **CCGT Units** specified in such **CCGT Module Matrix** running as indicated in the **CCGT Module Matrix** when it issues an instruction in respect of the **CCGT Module**;

BC1.A.1. ~~5~~6.8 Subject as provided in BC1.A.1.~~5~~6.5 above, any changes to the **CCGT Module Matrix** must be notified immediately to **NGET** in accordance with the relevant provisions of **BC1**.

BC1.A.1. ~~6~~7 Cascade Hydro Scheme Matrix

BC1.A.1. ~~6~~7.1 A **Cascade Hydro Scheme Matrix** showing the performance of individual **Generating Units** forming part of a **Cascade Hydro Scheme** in response to **Bid-Offer Acceptance**. An example table is shown below:

Cascade Hydro Scheme Matrix example form

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

BC1.A.1. ~~7~~8 Power Park Module Availability Matrix

BC1.A.1. ~~7~~8.1 **Power Park Module Availability Matrix** showing the number of each type of **Power Park Units** expected to be available is illustrated in the example form below. The **Power Park Module Availability Matrix** is designed to achieve certainty in knowing the number of **Power Park Units Synchronised** to meet the **Physical Notification** and to achieve a **Bid-Offer Acceptance**. The **Power Park Module Availability Matrix** may have as many columns as are required to provide information on the different make and model for each type of **Power Park Unit** in a **Power Park Module**. The description is required to assist identification of the **Power Park Units** within the **Power Park Module** and correlation with data provided under the **Planning Code**.

Power Park Module Availability Matrix example form

POWER PARK	**POWER PARK UNITS**

UNIT AVAILABILITY	Type A	Type B	Type C	Type D
Description (Make/Model)				
Number of units				

BC1.A.1. 7~~8~~.2 In the absence of the correct submission of a **Power Park Module Availability Matrix** the last submitted (or deemed submitted) **Power Park Module Availability Matrix** shall be taken to be the **Power Park Module Availability Matrix** submitted hereunder.

BC1.A.1. 7~~8~~.3 **NGET** will rely on the **Power Park Units** specified in such **Power Park Module Availability Matrix** running as indicated in the **Power Park Module Availability Matrix** when it issues an instruction in respect of the **Power Park Module**;

BC1.A.1. 7~~8~~.4 Subject as provided in PC.A.3.2.4 any changes to the **Power Park Module Availability Matrix** must be notified immediately to **NGET** in accordance with the relevant provisions of **BC1**.

APPENDIX 2 - DATA TO BE MADE AVAILABLE BY NGET

BC1.A.2.1 Initial Day Ahead Demand Forecast

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

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

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

BC1.A.2.2 Initial Day Ahead Market Information

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

(i) Initial National **Indicated Margin**

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

(ii) Initial National **Indicated Imbalance**

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

(iii) Forecast of **National Electricity Transmission System Demand**.

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

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

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

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

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

National Information

(i) National **Indicated Margin**;

(ii) National **Indicated Imbalance**;

(iii) Updated forecast of **National Electricity Transmission System Demand**.

Constraint Boundary Information (For Each Constraint Boundary)

(i) **Indicated Constraint Boundary Margin**;

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

(ii) Local **Indicated Imbalance**;

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

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

< END OF BALANCING CODE NO. 1 >

BALANCING CODE NO. 2
(BC2)

POST GATE CLOSURE PROCESS

CONTENTS

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

BC2.1 INTRODUCTION

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

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

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

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

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

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

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

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

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

BC2.2 OBJECTIVE

The procedure covering the operation of the **Balancing Mechanism** and the issuing of instructions to **Users** is intended to enable **NGET** 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 **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**, or

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

BC2.3 SCOPE

BC2 applies to **NGET** 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 **NGET** 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 **NGET** may need to issue

will be:

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

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

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

BC2.4.2 As provided for in BC1.5.4, **NGET** 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 **NGET**, and will reflect any **Demand Control** which has also been so notified. **NGET** may issue new or revised **National Electricity Transmission System Warnings – Inadequate System Margin** or **High Risk of Demand Reduction** in accordance with BC1.5.4.

BC2.5 PHYSICAL OPERATION OF BM UNITS

BC2.5.1 Accuracy Of Physical Notifications

As described in BC1.4.2(a), **Physical Notifications** must represent the **BM Participant's** best estimate of expected input or output of **Active Power** and shall be prepared in accordance with **Good Industry Practice**.

Each **BM Participant** must, applying **Good Industry Practice**, ensure that each of its **BM Units** follows the **Physical Notification** in respect of that **BM Unit** (and each of its **Generating Units** follows the **Physical Notification** in the case of **Physical Notifications** supplied under BC1.4.2(a)(2)) 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 **NGET** 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 **NGET** 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 **NGET** 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 **NGET** 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 **NGET** 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 **NGET** prior to **Gate Closure** indicating that a **Synchronisation** or **De-Synchronisation** is to occur; or

(b) **NGET** 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 **NGET**, 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 **NGET** as a result of plant breakdowns or if it is done purely on safety grounds (relating to personnel or plant). If that happens **NGET** 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 **NGET'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 **NGET** (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 **NGET** (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 **NGET's** agreement.

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

BC2.5.2.5 Notification Of Times To Network Operators

NGET 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 **NGET** has identified under **OC2** and/or **BC1** as being those which may, in the reasonable opinion of **NGET**, 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 **NGET** of any changes to its **User System** Data as soon as practicable in accordance with BC1.6.1(c).

BC2.5.2.6 Arrangements for the deviation from zero of BM Units that are operating at zero as a result of Bid-Offer Acceptances

Bid-Offer Acceptances may be issued to **BM Units** to operate at zero. The procedure that shall apply to the subsequent deviation from zero of these **BM Units** is:

Prior to commencing operation at zero, the **Generator** shall ensure that the Notice to Deviate from Zero (NDZ) of the **BM Unit** concerned is applicable for a deviation from zero at Minimum Zero Time (MZT) minutes after the deviation to zero. In this specific circumstance only, the NDZ shall not be greater than the MZT. The time at which the **BM Unit** subsequently deviates from zero shall be referred to as the Deviation from Zero Time (DZT). In the absence of any communications between **NGET** and the **Generator** to the contrary, a **BM Unit's** DZT shall be MZT minutes after the deviation to zero and, subject to the provisions of BC2.7.2(b), **NGET** shall issue **Bid-Offer Acceptances** such that the **BM Unit** deviates from zero at DZT.

Should **NGET** require the **BM Unit** to deviate from zero at a time later than the latest DZT, then it must inform the **Control Point** of this at least NDZ minutes prior to the latest DZT. The **Generator** may then redeclare its NDZ to a value that is applicable to the new DZT, but that still allows the new DZT to be achieved. **NGET** may further delay the DZT, providing that the notification of this to the **Control Point** is at least NDZ minutes before the latest DZT. After each revision to DZT, the **Generator** may redeclare its NDZ, again with the restriction that it should still allow the new DZT to be achieved. Subject to the provisions of BC2.7.2(b), **NGET** shall issue **Bid-Offer Acceptances** such that the **BM Unit** deviates from zero at the latest DZT.

BC2.5.3 Revisions To BM Unit Data

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

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 **NGET** the data listed in **BC2** ~~**BC1**~~, Appendix ~~1~~X under the heading of **Dynamic Parameters** ~~from the **Control Point** of its **BM Unit**~~ either where no such data is held by **NGET**, or in order to amend ~~the~~ any data already held by **NGET** (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 **NGET**. For the avoidance of doubt, the **Dynamic Parameters** submitted to **NGET** 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**, 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 **NGET** 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 **NGET** 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** ~~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 **NGET** 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 **NGET's** agreement.

BC2.5.4 Operation In The Absence Of Instructions From NGET

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** or **DC Converters** the steady state tolerance allowed in CC.6.3.2(b) 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** 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** or **DC Converters** the steady state tolerance allowed in CC.6.3.2(e) 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 a **Genset** located **Onshore**, unless otherwise agreed with **NGET**, 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 **NGET**. 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 **NGET** 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** 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 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 in CC.6.3.2(b) or CC.6.3.2 (e) may be applied. In the case of any such **Gensets** 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) 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) 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 **Non-Synchronous Generating Units**, **Power Park Modules** 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** 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 under CC.6.3.2 (e) (iii) 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** identified in the data given pursuant to PC.A.3.2.1 or at the single **Grid Entry Point** to which **NGET** has agreed pursuant to BC1.4.2(~~f~~e);

(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 **NGET**. **NGET** 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 **CCGT Modules** and/or **Power Park Modules** at a **Small Power Station** notifies **NGET** 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) 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) 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 **CCGT Modules** and/or **Power Park Modules** at a **Medium Power Station** or **Large Power Station** notifies **NGET** 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) 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) in relation to that **BM Unit**.

BC2.6 COMMUNICATIONS

Electronic communications are always conducted in GMT, except where **Electronic Data Communication Facilities (EDT*)** are used in which case the **User** may submit data with times in GMT or BST. However, the input of data and display of information to **Users** and **NGET** 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 **NGET**, **Ancillary Service** instructions shall be given by **Automatic Logging Device** ~~automatic logging device~~ and will be given to the **Control Point** for the **BM Unit**. For all **Planned Maintenance Outages** the provisions of BC2.6.5 will apply. For **Generating Units** communications under **BC2** shall be by telephone unless otherwise agreed by **NGET** 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**~~automatic logging device~~. If no confirmation or rejection is received by **NGET** within two minutes of the issue of the **Bid-Offer Acceptance**, then **NGET** will contact the **Control Point** for the **BM Unit** by telephone to determine the reason for the lack of confirmation or rejection. Any rejection must be given in accordance with BC2.7.3 or BC2.8.3.

(c) In the event of a failure of the logging device or a **NGET** 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), **NGET** 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

NGET 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

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

BC2.6.4 Communication With Externally Interconnected System Operators In Emergency Circumstances

NGET 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)~~ **BC2** Appendix X) should be attempted or **Generating Unit Data**. Plant failure or similar problems causing significant deviation from **Physical Notification** should be notified to **NGET** 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)~~ **BC2** Appendix X may be submitted. Communication between **Users' Control Points** and **NGET** during the outage will be conducted by telephone;

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

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

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

BC2.7 BID-OFFER ACCEPTANCES

BC2.7.1 Acceptance Of Bids And Offers By NGET

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

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

(b) **Bid-Offer Acceptances** sent to the **Control Point** will specify the data necessary to define a MW profile to be provided (ramp rate break-points are not normally explicitly sent to the **Control Point**) and to be achieved consistent with the respective **BM Unit's Export and Import Limits**, **QPNs** and **Joint BM Unit Data** provided or modified under **BC1** or **BC2**, and **Dynamic Parameters** given under BC2.5.3 or, if agreed with the relevant **User**, such rate within those **Dynamic Parameters** as is specified by **NGET** 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 **NGET** in issuing **Bid-Offer Acceptances** together with their meanings are set out in Appendix 1 in the form of a non-exhaustive list of examples.

BC2.7.2 Consistency With Export And Import Limits, QPNs And Dynamic Parameters

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

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

BC2.7.3 Confirmation And Rejection Of Acceptances

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

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

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

A reason must always be given for rejection by telephone.

Where a **Bid-Offer Acceptance** is not confirmed within two minutes or is rejected, **NGET** will seek to contact the **Control Point** for the **BM Unit**. **NGET** must then, within 15 minutes of issuing the **Bid-Offer Acceptance**, withdraw the **Bid-Offer Acceptance** or log the **Bid-Offer Acceptance** as confirmed. **NGET** will only log a rejected **Bid-Offer Acceptance** as confirmed following discussion and if the reason given is, in **NGET's** reasonable opinion, not acceptable and **NGET** 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 **NGET** with no more than the delay allowed for by the **Dynamic Parameters** unless the **BM Unit** has given notice to **NGET** 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 **NGET** 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), **NGET** must be notified immediately by telephone and this may lead to revision of **BM Unit Data** in accordance with BC2.5.3

BC2.7.5 Additional Action Required From Generators

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

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

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 Ancillary Services By NGET

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

(b) **NGET** 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) 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 **NGET** in its reasonable opinion, may be 49.90 or 50.10Hz.

(~~d~~e) The form of and terms to be used by **NGET** 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~~f) 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~~g) A **System to Generator Operational Intertripping Scheme** will be armed in accordance with BC2.10.2(a)

BC2.8.2 Consistency With Export And Import Limits, **QPNs** And Dynamic Parameters

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

BC2.8.3 Rejection Of Ancillary Service Instructions

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

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

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

BC2.8.4 Action Required From BM Units

(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 **NGET** within 2 minutes or such longer period as **NGET** may instruct, and all other **Ancillary Service** instructions without delay, unless the **BM Unit** or **Generating Unit** has given notice to **NGET** 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 **NGET** 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), **NGET** 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 **NGET** 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 Generating Unit**, **Embedded Power Park Module** or **DC Converter** at an **Embedded DC Converter Station**, then **NGET** will not issue any **Reactive Despatch Instruction** with respect to that **Generating Unit**, **Power Park Module** or **DC Converter** until such time as notification is given to **NGET** pursuant to the Grid Code that such **Reactive Despatch to Zero MVAr Network Restriction** is no longer affecting that **Generating Unit**, **Power Park Module** or **DC Converter**.

BC2.9 EMERGENCY CIRCUMSTANCES

BC2.9.1 Emergency Actions

BC2.9.1.1 In certain circumstances (as determined by **NGET** 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 **NGET** 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** process or the **Re-Synchronisation of De-Synchronised Island** process in accordance with OC9; or

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

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

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

BC2.9.2 Implementation Of Emergency Instructions

BC2.9.2.1 **Users** will respond to **Emergency Instructions** issued by **NGET** 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 **NGET** 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** any instruction given by **NGET** will (unless **NGET** specifies otherwise) be deemed to be an **Emergency Instruction** need not be pre-fixed 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 **NGET** 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 **NGET** issues an **Emergency Instruction** pursuant to a **Maximum Generation Service Agreemen**t 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 **NGET** issues an **Emergency Deenergisation Instruction** payment will be dealt with in accordance with the **CUSC**, Section 5.

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

BC2.9.3 Examples Of Emergency Instructions

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

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

(a) an instruction to trip one or more **Gensets** (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 **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 **NGET** in **NGET'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 **NGET** in **NGET'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 **NGET** in **NGET's** reasonable opinion).

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

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

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

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

(d) an instruction to split a network;

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

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

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

BC2.9.4.2 In the event that **NGET** is unable to differentiate between exporting **BM Units** according to **Bid-Offer Data**, **NGET** 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 **NGET** is still unable to differentiate between exporting **BM Units**, having considered all the foregoing, **NGET** 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, **NGET** 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 **NGET** 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 **NGET** 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 NGET** 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 under this BC2.9.4, **NGET** will not issue an instruction which would reduce generation below the reasonably anticipated **Demand** of the **On-Site Generator Site**. For the avoidance of doubt, it should be noted that the term "**On-Site Generator Site**" only relates to Trading Units which have fulfilled the Class 1 or Class 2 requirements.

BC2.9.5 Maintaining Adequate Frequency Sensitive Generation

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

(a) there are (or, as the case may be, that **NGET** 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 **NGET's** reasonable opinion, necessary to assist the relief of **System** constraints or necessary as a result of other **System** conditions); and

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

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

BC2.9.5.2 If in **NGET'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 **NGET** 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 **NGET** 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) **NGET** 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 Data Communication Facilities** ~~Electronic Communication And Computing Facilities~~

BC2.9.7.1 In the event of an unplanned outage of the **Electronic Data Communication Facilities** ~~electronic data communication facilities or of **NGET**'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 **NGET** will, as soon as it is reasonably able to do so, issue a **NGET** Computing System Failure notification by telephone or such other means agreed between **Users** and **NGET** indicating the likely duration of the outage.

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

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

(b) **BM Participants** should operate in relation to any period of time in accordance with the **Physical Notification** prevailing at **Gate Closure** current at the time of the computer system failure in relation to each such period of time. Such operation shall be subject to the provisions of BC2.5.1, which will apply as if set out in this BC2.9.7.2. No further submissions of **BM Unit Data** or **Generating Unit Data** (other than data specified in BC1.4.2(c) (**Export and Import Limits**) and ~~BC1.4.2(e)~~ **BC2** Appendix X (**Dynamic Parameters**) should be attempted. Plant failure or similar problems causing significant deviation from **Physical Notification** should be notified to **NGET** by telephone by the submission of a revision to **Export and Import Limits** in relation to the **BM Unit** or **Generating Unit Data** so affected;

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

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

(e) No data will be transferred from **NGET** to the **BMRA** until the **Electronic Data Communication Facilities** ~~communication facilities~~ are re-established.

BC2.9.7.3 **NGET** will advise **BM Participants** of the withdrawal of the **NGET** Computing System Failure notification following the re-establishment of the **Electronic Data Communication Facilities** ~~communication facilities~~.

BC2.10 OTHER OPERATIONAL INSTRUCTIONS AND NOTIFICATIONS

BC2.10.1 **NGET** 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 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 **NGET** 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 **NGET** 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 **NGET's** agreement for one of the **Gensets** at that **Power Station** to be operated under a risk of trip. **NGET'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 **NGET**.

(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 **NGET**. Only when the performance of the **Power System Stabiliser** has been approved by **NGET** shall it be switched into service by a **Generator** and then it will be kept in service at all times unless otherwise agreed with **NGET**. Further reference is made to this in CC.6.3.8.

BC2.11.3 A **Generator** at the **Control Point** for any of its **Power Stations** may request **NGET'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. **NGET'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) .

BC2.12 LIAISON WITH EXTERNALLY INTERCONNECTED SYSTEM OPERATORS

BC2.12.1 Co-Ordination Role Of Externally Interconnected System Operators

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

(b) **NGET** 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 **NGET** shall notify the **Externally Interconnected System Operator** accordingly. The **Externally Interconnected System Operator** should seek a revision of **Export and Import Limits** from one or more of its **Interconnector Users** for the remainder of the **Balancing Mechanism** period during which **Physical Notifications** cannot be revised.

APPENDIX 1 - FORM OF BID-OFFER ACCEPTANCES

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

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

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

BC2.A.1.4 Bid-Offer Acceptances Given By Automatic Logging Device

(a) The complete form of the **Bid-Offer Acceptance** is given in the **Automatic Logging Device** ~~EDL Message~~ Interface Specifications as listed in the **Electrical Standards** which will ~~can~~ be made available to **Users** ~~on request~~.

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

(i) **BM Unit** Name

(ii) Instruction Reference Number

(iii) Time of instruction

(iv) Type of instruction

(v) **BM Unit Bid-Offer Acceptance** number

(vi) Number of MW/Time points making up instruction (minimum 2, maximum 5)

(vii) MW value and Time value for each point identified in (vi)

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

BC2.A.1.5 Bid-Offer Acceptances Given By Telephone

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

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

(i) an exchange of operator names;

(ii) **BM Unit** Name;

(iii) Time of instruction;

(iv) Type of instruction;

(v) Number of MW/Time points making up instruction (minimum 2, maximum 5)

(vi) MW value and Time value for each point identified in (v)

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

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

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

300MW at 1400 hours

400MW at 1415 hours

400MW at 1450 hours

300MW at 1500 hours"

BC2.A.1.6 Submission Of Bid-Offer Acceptance Data To The **BMRA**~~mra~~

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

APPENDIX 2 - TYPE AND FORM OF ANCILLARY SERVICE INSTRUCTIONS

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

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

Part 1 System Ancillary Services Comprise:

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

(i) MVAr Output

(ii) Target Voltage Levels

(iii) Tap Changes

(iv) Maximum MVAr Output ('maximum excitation')

(v) Maximum MVAr Absorption ('minimum excitation')

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

Part 2 System Ancillary Services Comprise:

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

(d) **Black Start Capability**

(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 **NGET**, **Ancillary Service** instructions are normally given by **Automatic Logging Device** ~~automatic logging device~~, but in the absence of, or in the event of failure of the logging device, instructions will be given by telephone.

BC2.A.2.4 Instructions Given By Automatic Logging Device (EDL)

(a) The complete form of the **Ancillary Service** instruction is given in the interface specifications listed under the heading of Automatic Logging Devices (EDL) in the **Electrical Standards** ~~the EDL Message Interface Specification which is available to **Users** on request from **NGET**~~.

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

(i) **BM Unit** Name

(ii) Instruction Reference Number

(iii) Time of instruction

(iv) Type of instruction (REAS)

(v) Reason Code

(vi) Start Time

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

(i) **BM Unit** Name

(ii) Instruction Reference Number

(iii) Time of instruction

(iv) Type of instruction (MVAr~~,~~ or 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 Automatic Logging Device (EDL*)

(a) The complete form of the **Ancillary Service** instruction is given in the interface specifications listed under the heading of Automatic Logging Devices (EDL*) in the **Electrical Standards**.

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

(i) **BM Unit** Name

(ii) Instruction Reference Number

(iii) Time of instruction

(iv) Type of instruction (REAS)

(v) Reason Code

(vi) Start Time

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

(i) **BM Unit** Name

(ii) Instruction Reference Number

(iii) Time of instruction

(iv) Type of instruction (MVAr, VOLT, SETPOINT or TAP)

(v) Target Value

(vi) Target Time

(d) **Ancillary Service** instructions for **Target Frequency** will normally follow the form:

(i) Time of instruction

(ii) Target Frequency (49.90, 49.95, 50.00, 50.05 or 50.10Hz)

(iii) Start Time

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

BC2.A.2.~~6~~5 Instructions Given By Telephone

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

(i) an exchange of operator names;

(ii) **BM Unit** Name;

(iii) Time of instruction;

(iv) Type of instruction;

(v) Start Time.

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

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

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

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

(i~~a~~) an exchange of operator names;

(ii~~b~~) **BM Unit** Name;

(iii~~c~~) Time of instruction;

(iv~~d~~) Type of instruction (MVAr, VOLT, SETPOINT, **SLOPE** or TAP~~P~~)

(v~~e~~) Target Value

(vi~~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."

(c) **Ancillary Service** instructions for **Target Frequency** will normally follow the form:

(i) an exchange of operator names;

(ii) Time of instruction;

(iii) Target Frequency (49.90, 49.95, 50.00, 50.05 or 50.10Hz);

(iv) Start Time.

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

For example, a Control Point instructed at 1400 hours to change to a **Target Frequency** of 50.05Hz at 1415 hours:

"Message timed at 1400 hours. The **Target Frequency** will change to be 50.05Hz from 1415 hours."

BC2.A.2.7~~6~~ Reactive Power

As described in BC2.A.2.4, BC2.A.2.5 and BC2.A.2.6~~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. In relation to each **Genset**, where there is no HV indication, **NGET** 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 **NGET**) by tap changing on the generator step-up transformer, unless agreed otherwise. Once this has been achieved, the **Generator** will not tap again without prior consultation with and the agreement of **NGET**, 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. 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 **NGET**) by tap changing on the generator step-up transformer, unless agreed otherwise with **NGET**. In relation to each **Genset**, where there is no HV indication, **NGET** and the **Generator** will discuss and agree equivalent voltage levels for the corresponding LV indication. Under normal operating conditions, once this target voltage level has been achieved the **Generator** will not tap again without prior consultation with, and with the agreement of, **NGET**. However, under certain circumstances the **Generator** may be instructed to maintain a target voltage until otherwise instructed and this will be achieved by tap changing on the generator step-up transformer without reference to **NGET**.	VOLT
Setpoint Voltage	Where a **Non-Synchronous Generating Unit**, **DC Converter** or **Power Park Module** 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 **NGET**). The **Generator** must maintain the specified **Setpoint Voltage** target until an alternative target is received from **NGET**.	SETPOINT

Instruction Name	Description	Type of Instruction
Slope	Where a **Non-Synchronous Generating Unit**, **DC Converter** or **Power Park Module** 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 **NGET**). The **Generator** must maintain the specified **Slope** target until an alternative target is received from **NGET**. 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

Instruction Name	Description	Type of Instruction
Tap Changes	Details of the required generator step-up transformer tap changes in relation to a **Genset**. ~~The instruction for~~ A tap change~~s~~ instruction may be issued to a single **Synchronised Genset**, or alternatively may be a **Simultaneous Tap Change** instruction issued to **Synchronised Gensets** at relevant **Power Stations** for simultaneous implementation ~~instruction, whereby the tap change must be effected by the **Generator** in response to an instruction from **NGET** issued simultaneously to relevant **Power Stations**. The instruction, which is normally preceded by advance notice, must be effected at the specified target time as soon as possible, and in any event within one minute of receipt from **NGET** of the instruction~~. Where the tap instruction is a **Simultaneous Tap Change** instruction, then **NGET** shall normally issue the instruction at least 30 minutes before the target time of the instruction. ~~For a **Simultaneous** A T~~tap ~~C~~change instruction, ~~change~~ will request that the relevant **Genset** generator step-up transformer's tap position be changed by one or ~~[~~two~~]~~ taps to raise (+ve MVAr direction) or lower (-ve MVAr direction~~(as relevant~~) **System** voltage, to be executed at the start of the minute of the target time of ~~the~~ instruction. Once the tap change instruction has been fulfilled, the **Generator** should make no further tap changes on that **Genset** until receipt of a subsequent reactive power instruction for that **Genset** from **NGET**.	TAP~~P~~
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.~~8~~7 In addition, the following provisions will apply to **Reactive Power** instructions:

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

(b) Where the instructions require more than two taps per **BM Unit** and that means that the instructions cannot be achieved within 2 minutes of the instruction time (or such longer period at **NGET** 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, **NGET** may need to instruct maximum MVAr output to be achieved as soon as possible, but (subject to the provisions of paragraph (BC2.A.2.~~8~~7(b) above) in any event no later than 2 minutes after the instruction is issued.

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

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

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

APPENDIX 3 - SUBMISSION OF REVISED ~~MVAr~~ REACTIVE POWER CAPABILITY

BC2.A.3.1 For the purpose of submitting revised ~~MVAr~~ reactive power capability data the following terms shall apply:

Full Output	In the case of a **Synchronous Generating Unit** (as defined in the Glossary and Definitions 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**)~~, **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 and not limited by BC2.2) is the MW output measured at the generator stator terminals representing the LV equivalent of the **Minimum Generation** at the **Grid Entry Point**, and in the case of a **Non-Synchronous Generating Unit** (excluding **Power Park Units**)~~, **DC Converter** or **Power Park Module**~~ is the **Minimum Generation** at the **Grid Entry Point**

BC2.A.3.2 Any factors, e.g. step up transformer tap range limitations, within the **User System** that affect the capability of a **Generating Unit**, **Power Park Module** or **DC Converter** to transfer **Reactive Power** at the **Commercial Boundary** shall be reflected in the revised reactive power capability data submitted to **NGET** under this **BC2**.

BC2.A.3.3 The following provisions apply to faxed submission of revised ~~MVAr~~ reactive power capability data:

(a) The fax must be transmitted to **NGET** (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, **NGET** 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.

BC2.A.3.4 Those **Users** with **Electronic Data Communication Facilities (EDT*)** may submit revised reactive power capability data to **NGET** by that means. Any revised reactive power capability data submitted by this means will be validated on receipt by **NGET** which will include a check that the revised capability data does not exceed the corresponding values stated in the relevant **Ancillary Services Agreement**.

APPENDIX 3 - ANNEXURE 1

Optional Logo

Company name **REVISED ~~MVAr~~ REACTIVE POWER CAPABILITY DATA**

TO: ~~NGET~~ 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 **NGET**: (Signature)

.....

Acknowledgement time and date

.....

Legibility of FAX : Acceptable ☐

Unacceptable ☐ (Resend FAX)

(List pages if appropriate)

APPENDIX 3 - ANNEXURE 2

To: ~~NGET~~ National Electricity Transmission System Control Centre

From: [Company Name & Location]

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

	HRS MINS DD MM YY
Notification Time/Date:	. / /
Start Time/Date:	HRS MINS DD MM YY . / /

GENERATING UNIT* [for BM Units quote the NGET BM Unit id, for other units quote the Generating Unit id used for OC2.4.1.2 Outage Planning submissions] ~~/POWER PARK MODULE DC CONVERTER~~	

~~Start Time/Date (if not effective immediately)~~

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

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

~~**GENERATING UNIT STEP-UP TRANSFORMER DATA, WHERE APPLICABLE**~~

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

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

	~~LEAD (MVAr)~~	~~LAG (MVARr)~~
~~AT **RATED MW~~**		

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

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

_____

_____

_____

Redeclaration made by (Signature)

_____

Receipt Acknowledgement from **NGET**

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

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

* For a CCGT Module or a Cascade Hydro Scheme, the redeclaration is for a ~~individual~~ ~~CCGT~~ Generating Unit within a CCGT Module or Cascade Hydro Scheme ~~and not the entire module~~.

APPENDIX 3 - ANNEXURE 3

To: National Electricity~~GET~~ Transmission System Control Centre

From : [Company Name & Location]:

REVISED ~~MVAr~~ REACTIVE POWER CAPABILITY DATA – POWER PARK ~~UNITS~~ MODULES AND DC CONVERTERS

HRS MINS DD MM YY

Notification Time/Date: . / /

HRS MINS DD MM YY

Start Time/Date: . / /

POWER PARK MODULE / DC CONVERTER [for BM Units quote the NGET 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:

- ~~**GRID ENTRY POINT (ENGLAND AND WALES); OR**~~
- ~~**HV SIDE OF RELEVANT TRANSFORMER (SCOTLAND); OR**~~
- ~~**USER SYSTEM ENTRY POINT (IF EMBEDDED) OF THE POWER PARK MODULE; OR**~~
- ~~**DC CONVERTER OR THE AGGREGATED CAPABILITY OF THE POWER PARK UNITS AT THE POWER PARK UNIT TERMINALS**~~

	~~MW~~	~~LEAD (MVAr)~~ MINIMUM (MVAr +ve for lag, -ve for lead)	~~LAG (MVAr)~~ 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*

~~Confirm voltage to which these figures relate~~

~~POWER PARK MODULE OR DC CONVERTER STEP-UP TRANSFORMER DATA, WHERE APPLICABLE~~

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

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

Redeclaration made by (Signature)

Receipt Acknowledgement from **NGET**

Legible (tick box)		Illegible (tick box)	
Explanation:			
Time: Date: 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 **NGET** (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, **NGET** 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 Those **Users** with **Electronic Data Communication Facilities (EDT*)** may submit the relevant data to **NGET** by that means.

BC2.A.4.4 The **User** shall ensure the availability of operating in the **Frequency Sensitive Mode** is restored as soon as reasonably practicable and will notify **NGET** using the format of Appendix 4 – Annexure 1. In the event of a sustained unavailability of **Frequency Sensitive Mode NGET** may seek to confirm compliance with the relevant requirements in the **CC** through the process in **OC5**.

APPENDIX 4 - ANNEXURE 1

To: National Electricity Transmission System ~~**GET** Transmission~~ Control Centre
From: [Company Name and Location]

Submission of availability of Frequency Sensitive Mode

Notification Time/Date: HRS MINS DD MM YY . / /

Start Time/Date: HRS MINS DD MM YY . / /

GENSET~~ERATING UNIT *~~ OR DC CONVERTER	

~~Start Time / Date (if not effective immediately)~~

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

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

or

Change to the availability of individual contract modes:

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

Limited Frequency Sensitive Mode must be maintained in accordance with BC3.7.2.

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

_____

_____

~~Please provided brief description of reason for unavailability of **Frequency Sensitive Mode** (e.g. Testing, technical problem)~~

~~**If declaring Unavailability**~~
~~Predicted End Time / Date (to be confirmed by re-declaration):~~

Re-declaration made by (signature) _____

- ~~For a CCGT the re-declaration is for an individual **CCGT Unit** and not the entire module~~

Receipt Acknowledgement from **NGET**

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

APPENDIX X – DYNAMIC PARAMETERS

BC2.A.X.1 This Appendix describes the **Dynamic Parameter** data items that each **BM Participant** will, in respect of each of its **BM Units**, submit to **NGET** for use in preparing for and operating the **Balancing Mechanism**.

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

BC2.A.X.2 For those **Control Points** that utilise **Electronic Data Communication Facilities (EDL & EDT)** ~~T~~the **Dynamic Parameters,** that take effect from the time of receipt by **NGET**, comprise:

- Up to three Run-Up Rate(s) and up to three Run-Down Rate(s), expressed in MW/minute with a lower limit of 0.2MW/minute and associated Run-Up Elbow(s) and Run-Down Elbow(s), expressed in MW for output and the same for input. It should be noted that Run-Up Rate(s) are applicable to a MW figure becoming more positive;
- Notice to Deviate from Zero (NDZ) output or input, being the notification time required for a **BM Unit** to start importing or exporting energy, from ~~a~~ operation at zero, ~~**Physical Notification** level~~ as a result of a **Bid-Offer Acceptance**, expressed in minutes;
- Notice to Deliver Offers (NTO) and Notice to Deliver Bids (NTB), expressed in minutes, indicating the notification time required for a **BM Unit** to start delivering Offers and Bids respectively from the time that the **Bid-Offer Acceptance** is issued. In the case of a **BM Unit** comprising a **Genset**, NTO and NTB will be set to a maximum period of two minutes;
- Minimum Zero Time (MZT), being either the minimum time that a **BM Unit** which has been exporting must operate at zero or be importing, before returning to exporting or the minimum time that a **BM Unit** which has been importing must operate at zero or be exporting before returning to importing, as a result of a **Bid-Offer Acceptance**, expressed in minutes;
- Minimum Non-Zero Time (MNZT), expressed in minutes, being the minimum time that a **BM Unit** can operate at a non-zero level as a result of a **Bid-Offer Acceptance**;
- Stable Export Limit (SEL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, export to the **National Electricity Transmission System**;
- Stable Import Limit (SIL) expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, import from the **National Electricity Transmission System**;

- Maximum Delivery Volume (MDV), expressed in MWh, being the maximum number of MWh of Offer (or Bid if MDV is negative) that a particular **BM Unit** may deliver within the associated Maximum Delivery Period (MDP), expressed in minutes, being the maximum period over which the MDV applies.
- Last Time to Cancel Synchronisation (LTCS), expressed in minutes with an upper limit of 60 minutes, being the notification time required to cancel a **BM Unit's** transition from operation at zero. This parameter is only applicable where the transition arises either from a **Physical Notification** or, in the case where the **Physical Notification** is zero, a **Bid-Offer Acceptance**. There can be up to three Last Time to Cancel Synchronisation(s) each applicable for a range of values of Notice to Deviate from Zero.

BC2.A.X.3 For those **Control Points** and **Trading Points** that utilise **Electronic Data Communication Facilities (EDT*)** ~~T~~the **Dynamic Parameters**, with the exception of Stable Import and Stable Export Limits, that take effect from the time of receipt by **NGET**, comprise:

- Up to ten ~~three~~ Run-Up Rate(s) and up to ten ~~three~~ Run-Down Rate(s), expressed in MW/minute with a lower limit of 0.02MW/minute and associated Run-Up Elbow(s) and Run-Down Elbow(s), expressed in MW for output and the same for input. It should be noted that Run-Up Rate(s) are applicable to a MW figure becoming more positive;
- Notice to Deviate from Zero (NDZ) output or input, being the notification time required for a **BM Unit** to start importing or exporting energy, from ~~a~~ operation at zero, ~~**Physical Notification** level~~ as a result of a **Bid-Offer Acceptance**, expressed in minutes;
- Notice to Deliver Offers (NTO) and Notice to Deliver Bids (NTB), expressed in minutes, indicating the notification time required for a **BM Unit** to start delivering Offers and Bids respectively from the time that the **Bid-Offer Acceptance** is issued. In the case of a **BM Unit** comprising a **Genset**, NTO and NTB will be set to a maximum period of two minutes;
- Minimum Zero Time (MZT), being either the minimum time that a **BM Unit** which has been exporting must operate at zero or be importing, before returning to exporting or the minimum time that a **BM Unit** which has been importing must operate at zero or be exporting before returning to importing, as a result of a **Bid-Offer Acceptance**, expressed in minutes;
- Minimum Non-Zero Time (MNZT), expressed in minutes, being the minimum time that a **BM Unit** can operate at a non-zero level as a result of a **Bid-Offer Acceptance**;
- Stable Export Limit (SEL) a series of MW figures and associated times, making up a profile of the minimum level at which the **BM Unit** can export, under stable conditions, to the **National Electricity Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate; ~~expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, export to the **National Electricity Transmission System**;~~
- Stable Import Limit (SIL) a series of MW figures and associated times, making up a profile of the minimum level at which the **BM Unit** can import, under stable conditions, from the **National Electricity Transmission System** at the **Grid Entry Point** or **Grid Supply Point**, as appropriate; ~~expressed in MW at the **Grid Entry Point** or **Grid Supply Point**, as appropriate, being the minimum value at which the **BM Unit** can, under stable conditions, import from the **National Electricity Transmission System**;~~

- Maximum Delivery Volume (MDV), expressed in MWh, being the maximum number of MWh of Offer (or Bid if MDV is negative) that a particular **BM Unit** may deliver within the associated Maximum Delivery Period (MDP), expressed in minutes, being the maximum period over which the MDV applies.
- Last Time to Cancel Synchronisation (LTCS), expressed in minutes with an upper limit of 60 minutes, being the notification time required to cancel a **BM Unit's** transition from operation at zero. This parameter is only applicable where the transition arises either from a **Physical Notification** or, in the case where the **Physical Notification** is zero, a **Bid-Offer Acceptance**. There can be up to three Last Time to Cancel Synchronisation(s) each applicable for a range of values of Notice to Deviate from Zero.

< END OF BALANCING CODE 2 >

Electronic Data Communication Facilities

CC.6.5.8 (a) All **BM Participants** must ensure that appropriate **Electronic Data Communication Facilities** ~~electronic data communication facilities~~ are in place to permit the submission of data, as required by the **Grid Code**, to **NGET**. **BM Participants** are advised to contact **NGET** to confirm the appropriateness of their proposed **Electronic Data Communications Facilities**. From **[TO BE INSERTED: IMPLEMENTATION DATE OF GRID CODE CHANGE + 5 YEARS]** these **Electronic Data Communication Facilities** shall only be **Electronic Data Communication Facilities (EDT*)**.

(b) In addition,

(1) any **User** that wishes to participate in the **Balancing Mechanism**;

or

(2) any BM Participant in respect of its BM Units at a Power Station where the Construction Agreement and/or a Bilateral Agreement has a Completion Date on or after 1 January 2013 and the BM Participant is required to provide all Part 1 System Ancillary Services in accordance with CC.8.1 (unless NGET has otherwise agreed) ~~———~~must ensure that appropriate **Automatic Logging Devices** ~~automatic logging devices~~ are installed at the Control Points of its BM Units to submit data to and to receive instructions from NGET, as required by the Grid Code. **BM Participants** are advised to contact **NGET** to confirm the appropriateness of their proposed **Automatic Logging Devices**. From **[TO BE INSERTED: IMPLEMENTATION DATE OF GRID CODE CHANGE + 5 YEARS]** these **Automatic Logging Devices** shall only be **Automatic Logging Devices (EDL*)**. For the avoidance of doubt, in the case of an Interconnector User the Control Point will be at the Control Centre of the appropriate Externally Interconnected System Operator.

(c) Detailed specifications of the~~se~~ required **Electronic Data Communication Facilities** ~~electronic facilities~~ and **Automatic Logging Devices** will be made available by **NGET** to Users and ~~they~~ are listed as **Electrical Standards** in the Annex to the **General Conditions**.

SCHEDULE 8 - DATA SUPPLIED BY BM PARTICIPANTS
PAGE 1 OF 1

CODE	DESCRIPTION
BC1	**Physical Notifications**
BC1	**Quiescent Physical Notifications**
BC1 & **BC2**	**Export and Import Limits**
BC1	**Bid-Offer Data**
~~**BC1**~~	~~**Dynamic Parameters** (Day Ahead)~~
BC2	**Dynamic Parameters** ~~(For use in **Balancing Mechanism**)~~
BC1 & **BC2**	**Other Relevant Data**
BC1	**Joint BM Unit Data**

Operating Code No. 5

OC5.5.1.3

(a) The instruction referred to in OC5.5.1.1 may only be issued if the relevant **User** has submitted **Export and Import Limits** which notify that the relevant **BM Unit** is available in respect of the **Operational Day** current at the time at which the instruction is issued. The relevant **User** shall then be obliged to submit **Export and Import Limits** with a magnitude greater than zero for that **BM Unit** in respect of the time and the duration that the test is instructed to be carried out, unless that **BM Unit** would not then be available by reason of forced outage or **Planned Outage** expected prior to this instruction.

(b) In the case of a **CCGT Module** the **Export and Import Limits** data must relate to the same **CCGT Units** which were included in respect of the **Operational Day** current at the time at which the instruction referred to in OC5.5.1.1 is issued and must include, in relation to each of the **CCGT Units** within the **CCGT Module**, details of the various data set out in BC1.A.1.3 and BC2.A.X ~~BC1.A.1.5~~, which parameters **NGET** will utilise in instructing in accordance with this **OC5** in issuing **Bid-Offer Acceptances**. The parameters shall reasonably reflect the true operating characteristics of each **CCGT Unit**.

(c) The test referred to in OC5.5.1.1 will be initiated by the issue of instructions, which may be accompanied by a **Bid-Offer Acceptance**, under **BC2** (in accordance with the **Export and Import Limits**, **QPN**, **Joint BM Unit Data** and **Dynamic Parameters** which have been submitted for the day on which the test was called, or in the case of a **CCGT Unit**, in accordance with the parameters submitted under OC5.5.1.3(b)). The instructions in respect of a **CCGT Unit** within a **CCGT Module** will be in respect of the **CCGT Unit**, as provided in BC2.

Planning Code

PC.A.3.2.3 Notwithstanding any other provision of this PC, the **CCGT Units** within a **CCGT Module**, details of which are required under paragraph (g) of PC.A.3.2.2, can only be amended in accordance with the following provisions:-

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

(b) if the **CCGT Module** is a **Range CCGT Module**, the **CCGT Units** within that **CCGT Module** and the **Grid Entry Point** at which the power is provided can only be amended as described in BC1.A.1.5~~6~~.4.

PC.A.3.2.4 Notwithstanding any other provision of this **PC**, the **Power Park Units** within a **Power Park Module**, details of which are required under paragraph (k) of PC.A.3.2.2, can only be amended in accordance with the following provisions:-

(a) if the **Power Park Units** within that **Power Park Module** can only be amended such that the **Power Park Module** comprises different **Power Park Units** due to repair/replacement of individual **Power Park Units** if **NGET** gives its prior consent in writing. Notice of the wish to amend a **Power Park Unit** within such a **Power Park Module** must be given at least 4 weeks before it is wished for the amendment to take effect;

(b) if the **Power Park Units** within that **Power Park Module** can be selected to run in different **Power Park Modules** as an alternative operational running arrangement the **Power Park Units** within the **Power Park Module** and the **Grid Entry Point** at which the power is provided can only be amended as described in BC1.A.1.7~~8~~.4.