

**Annual Review
of the Balancing Principles Statement (BPS)
and Procurement Guidelines (PG)**

**A Consultation by National Grid
January 2008**

Overview

National Grid is conducting an annual review of the Balancing Principles Statement (BPS) and Procurement Guidelines (PG).

National Grid is proposing house-keeping changes to the BPS (e.g. removal of incorrect and redundant references).

No changes are proposed to the PG.

This consultation seeks industry views on the proposed house-keeping changes in the BPS. National Grid also invites views on any other aspect of the BPS and the PG.

Consultation Process

This consultation seeks views on proposed amendments to the BPS. It is being carried out in accordance with the provisions contained within Standard Condition 16 of National Grid's Electricity Transmission Licence.

A copy of the BPS with the proposed changes is attached to this consultation as Appendix A.

Following receipt of responses to this consultation, National Grid will prepare and submit a report (in accordance with Electricity Transmission Licence Standard Condition C16 paragraph 8) to the Authority. The consultation document, consultation report, and all responses, will be published on National Grid's website:

<http://www.nationalgrid.com/uk/Electricity/Balancing/consultations/>

The current version of the BPS can be found at the following link:

<http://www.nationalgrid.com/uk/Electricity/Balancing/transmissionlicensestatements/>

Consultation Timescales

In accordance with the provisions of Standard Condition C16 of National Grid's Transmission Licence, the consultation period will be 28 days. Therefore the consultation timetable is as follows:

Consultation published
Closing date for responses
Consultation Report to the Authority

Tuesday 29 January 2008
Monday 5pm, 25 February 2008
Monday 3 March 2008

Document Structure

The remainder of this document is structured as follows:

1. Background
2. Summary of Proposed Changes
3. Implementation Timescales
4. Consultation Responses
5. Appendix A – a copy of the BPS showing Proposed Changes
6. Appendix B – a copy of the PG

1 Background

In accordance with its licence obligations under Standard Condition C16, National Grid is required to carry out an annual review of the Balancing Principles Statement and the Procurement Guidelines, and, if appropriate, to propose changes to these documents.

National Grid is proposing to make house-keeping changes to the BPS (e.g. removal of incorrect and redundant references).

No changes are proposed to the PG.

This consultation seeks industry views on the proposed house-keeping changes in the BPS. National Grid also invites views on any other aspect of the BPS and the PG.

2 Summary of Proposed Changes in the BPS

The proposed changes are house-keeping changes for the BPS, and are summarised in Table 1.

Table 1 – Proposed House-keeping Changes

Section	Change	Comment
Part C, Paragraph 1	Insert “GB” before “National Demand”	Change required to correct the term in line with the definition in the Grid Code
Part C, Paragraph 1	Delete “NGC Demand” and replace it with “GB Transmission System Demand”	Change required to correct the term in line with the definition in the Grid Code
Part C, Paragraph 6	Delete “(see Part H)” in the first sentence.	Change required to remove a redundant reference
Part E, Section 2, Within Day Balancing Process – Control Phase	Delete “Sections 3 and 4” and replace with “Sections 5 and 6”.	Change required to ensure correct reference to appropriate sections

3 Proposed Implementation Date

In accordance with the provisions of Standard Condition C16 of National Grid’s Transmission Licence, the consultation period will be 28 days. Therefore the consultation timetable is as follows:

Consultation published	Tuesday 29 January 2008
Closing date for responses	Monday 5pm, 25 February 2008
Consultation Report to the Authority	Monday 3 March 2008

Subject to Ofgem approval of the proposed changes by Monday 31 March 2008, it is National Grid’s intention to implement the proposed changes on Tuesday 1 April 2008.

4 Consultation Responses

Consultation responses should be forwarded to the Balancing Services e-mail address BalancingServices@uk.ngrid.com by **Monday 5pm on 25 February 2008**. Comments will be reviewed, and National Grid will then prepare a report to the Authority.

A full copy of all responses will be provided to the Authority and will be made publicly available on the Industry Information web site (<http://www.nationalgrid.com/uk/Electricity/Balancing/consultations/>).

APPENDIX A
Proposed Changes to the Balancing Principles Statement

[Please see separate document for proposed changes to the Balancing Principles Statement]

APPENDIX B
Current Procurement Guidelines

[Please see separate document for the current copy of Procurement Guidelines]

Appendix A

Balancing Principles Statement

Effective from: 1 April 2007⁸

Version Control

<u>Date</u>	<u>Version No.</u>	<u>Notes</u>
<u>20.03.01</u>	<u>1.0</u>	<u>Initial version</u>
<u>01.05.02</u>	<u>2.0</u>	<u>Revised to incorporate changes following March / April 2002 consultation.</u>
<u>01.05.03</u>	<u>3.0</u>	<u>Revision following annual review</u>
<u>28.11.03</u>	<u>3.1</u>	<u>Revision to incorporate introduction of Maximum Generation Service and changes to the PGBT Tender process</u>
<u>01.05.04</u>	<u>4.0</u>	<u>Revision following annual review</u>
<u>04.10.04</u>	<u>4.1</u>	<u>Revisions to incorporate changes as a result of CAP071: the development of Maximum Generation Service</u>
<u>01.01.05</u>	<u>4.2</u>	<u>Revisions to incorporate changes relating to BETTA</u>
<u>02.09.05</u>	<u>5.0</u>	<u>Revision following annual review</u>
<u>06.04.06</u>	<u>6.0</u>	<u>Revision following annual review</u>
<u>01.11.06</u>	<u>6.01</u>	<u>Revisions to incorporate the replacement of the Warming & Hot Standby service with BM Start Up service</u>
<u>01.04.07</u>	<u>7.0</u>	<u>Revisions to incorporate Short Term Operating Reserve (STOR)</u>
	<u>8.0</u>	<u>Revision following annual review</u>

This Balancing Principles Statement has been developed and approved by the Authority to assist Balancing Settlement Code (BSC) participants in understanding our actions in achieving the efficient, economic and co-ordinated operation of the transmission system. This

Balancing Principles Statement may only be modified in accordance with the processes set out in Standard Condition C16 of the Transmission Licence. We will review this Balancing Principles Statement, provide the Authority with relevant information in relation to such review and provide the Authority with the relevant reports and statements in accordance with the relevant provisions of Standard Condition C16 of the Transmission Licence.

In the event that it is necessary to modify this Balancing Principles Statement in advance of us issuing the annual updated version of the document, then this will be done by issuing a supplement to the Balancing Principles Statement.

The latest version of this document is available, together with the relevant change marked version (if any), electronically from the National Grid Website;

http://www.nationalgridinfo.co.uk/balancing/mn_transmission.html

Alternatively, a copy may be requested from
Regulatory Frameworks Manager
National Grid Electricity Transmission plc
National Grid House
Warwick Technology Park
Gallows Hill
Warwick CV34 6DA

Email address BalancingServices@uk.ngrid.com

CONTENTS

PART A Introduction

1. Purpose of Document

PART B General Principles

1. Licence Duties
2. Other Compliance Reporting
3. Information Sources
4. Balancing Measures
5. Emergency Instructions
6. Involuntary Reductions

PART C Principles Underlying Balancing Measures

PART D Transmission Constraint Management and Response/Reserve Holding Principles

1. Transmission Constraint Management Principles
2. Constraint Management Processes
3. Response/Reserve Holding Principles

PART E Day Ahead and Within Day Balancing

1. Day Ahead Balancing Process - Scheduling Phase
2. Within Day Balancing Process - Control Phase

PART F Summary of Operational Security Standards

1. Overview
2. System Frequency Control Standard
3. Voltage Control Standard

PART G Exceptions to the Balancing Principles Statement

PART A: INTRODUCTION

1. Purpose of Document

This document is the Balancing Principles Statement, which National Grid Electricity Transmission plc, (is required to establish in accordance with Standard Condition C16 of the Transmission Licence. The purpose of this Balancing Principles Statement is to define the broad principles and criteria (the Balancing Principles) by which we will determine, at different times and in different circumstances, which Balancing Services we will use to assist in the operation of the transmission system and/or to assist in doing so efficiently and economically, and when we would resort to measures not involving the use of Balancing Services.

This Balancing Principles Statement is designed to indicate the broad framework against which we will make balancing action decisions.

Part B sets out a number of general principles relating to the development and application of this Balancing Principles Statement and Part C describes the broad principles by which we will utilise balancing measures. Part D describes the broad principles by which we undertake both the management of transmission constraints and response/reserve services and Part E sets out the processes that we will normally undertake at the day ahead and on the day to achieve system balance. Part F summarises our operational security standards that effectively define the requirements for balancing measures.

In the event that it is necessary to modify this Balancing Principles Statement in advance of us issuing the annual updated version of the document, then this will be done by issuing a supplement to the Balancing Principles Statement.

This Balancing Principles Statement has been developed and approved by the Authority to assist BSC participants in understanding our actions in achieving the efficient, economic and co-ordinated operation of the transmission system. This Balancing Principles Statement may only be modified in accordance with the processes set out in Standard Condition C16 of the Transmission Licence. We will review this Balancing Principles Statement, provide the Authority with relevant information in relation to such review and provide the Authority the relevant reports and statements in accordance with the relevant provisions of Standard Condition C16 of the Transmission Licence.

This Balancing Principles Statement makes reference to a number of provisions contained in the Grid Code and Balancing and Settlement Code. In the event that any of the relevant provisions in the Grid Code or Balancing and Settlement Code are amended it may become necessary for us to seek to modify the Balancing Principles Statement in order that it remains consistent with the Grid Code and/or Balancing and Settlement Code.

In any event where our statutory obligations or the provisions of the Grid Code are considered inconsistent with any part of this Balancing Principles Statement, then the relevant statutory obligation and/or Grid Code provisions will take precedence.

Unless defined in this Balancing Principles Statement, terms used herein shall have the same meanings given to them in the Transmission Licence, the Grid Code and/or the Balancing and Settlement Code as the case may be.

Copies of this Balancing Principles Statement are available from National Grid Electricity Transmission plc upon request. The most recent edition (and any archived editions) will be available from National Grid's website

http://www.nationalgridinfo.co.uk/balancing/mn_transmission.html.

PART B: GENERAL PRINCIPLES

1 Licence Duties

This Balancing Principles Statement is written to be consistent with and to satisfy our licence obligation to “operate the Licensee’s Transmission System in an efficient, economic and co-ordinated manner” and our duty under the Transmission Licence not to discriminate in our procurement or use of Balancing Services.

National Grid Electricity Transmission plc will normally operate in accordance with the Balancing Principles Statement and compliance will be measured by two processes:

- (i) Providing an annual report to the Authority on the manner in which and the extent to which we have complied with the Balancing Principles Statement and whether any modifications should be made to the Balancing Principles Statement to reflect more closely our practice.
- (ii) In addition we will be subject to an external audit to determine the extent to which we have, in using Balancing Services, complied with the Balancing Principles Statement. The audit statement will be made available to the Authority in accordance with the Transmission Licence.

Additionally we shall, if directed by the Authority, and in any event at least once a year, review the Balancing Principles Statement in consultation with BSC Parties and other interested parties likely to be affected by the Balancing Principles Statement.

2 Other Compliance Reporting

In addition to our licence duties we shall also provide a report to the Authority, either when requested, or where we become aware of any circumstances of significant non-compliance, in our use of Balancing Services.

The report will summarise the incident together with an explanation of the circumstances leading to the deviation from this Balancing Principles Statement. We shall endeavour to provide such reports to the Authority within 28 days of the request being made. Furthermore such reports shall be made available to the industry (via the Ofgem website).

3 Information Sources

We will determine what balancing measures will be employed by taking account of Balancing Mechanism Unit (BMU) data (made available on the Balancing Mechanism Reporting System (BMRS) from participants, our forecast of 'NGC Demand' (BC1 of the Grid Code details the release of this information on the BMRS), the Transmission Outage Plan (our co-ordinated schedule of transmission plant outages, details of which are made available to relevant generators and Network Operators under OC2 of the Grid Code), actual system conditions (including weather conditions) and any other relevant data as defined in BC 1.4.2 (F) of the Grid Code.

4 Balancing Measures

The balancing measures available to us constitute Balancing Services. The Transmission Licence defines Balancing Services as:

- (a) ancillary services;
- (b) offers and bids made in the balancing mechanism; and
- (c) other services available to the licensee which serve to assist the licensee in co-ordinating and directing the flow of electricity onto and over the GB transmission system in accordance with the Act or the standard conditions and/or in doing so efficiently and economically, but shall not include anything provided by another transmission licensee pursuant to the STC.

5 Emergency Instructions

In certain circumstances it will be necessary, in order to preserve the integrity of our transmission system and any synchronously connected external system, for us to issue 'Emergency Instructions'. In such circumstances it may be necessary to depart from normal BM operation in accordance with BC2.9 of the Grid Code. Examples of such circumstances that may require the issue of Emergency Instructions include:

(a) Events

Events on our transmission system or the system of another user that leads or could potentially lead to insecure system operation and for which insufficient relevant Bid-Offers are available to restore system security. The Grid Code defines an 'Event' as:

*'An unscheduled or unplanned (although it may be anticipated) occurrence on, or relating to, a **System** (including **Embedded Power Stations**) including, without limiting that general description, faults, incidents and breakdowns and adverse weather conditions being experienced'.*

(b) **Demand Control** (detailed in OC6.5 to OC6.8)

Operating Code No. 6 (OC6) of the Grid Code is concerned with the provisions to be made by Network Operators, and in relation to Non-Embedded Customers by us, to permit the reduction of demand in the event of insufficient active power generation being available to meet demand, or in the event of breakdown or operating problems (such as in respect of system frequency, system voltage levels or system thermal overloads) on any part of our transmission system.

(c) **System and Localised Negative Reserve Active Power Margin** (detailed in BC2.9.4 of the Grid Code).

BC2.9.4 details the actions that we can undertake in ensuring that:

- the sum of synchronised Gensets at all times are capable of reducing output sufficient to offset the loss of the largest secured demand on the system and
- synchronised Gensets at all times are capable of reducing output to allow transfers to and from system constraint groups to be contained within the required limits.

In both cases this action must be sustainable.

System Negative Reserve Active Power Margin

It should be noted that if the System Negative Reserve Active Power Margin (NRAPM) is not met then the resulting high frequency following the loss of the largest secured demand would not be abated.

Where we are unable to satisfy the required System NRAPM we will select (and instruct) Gensets for De-synchronising on the basis of Bid-Offer Data submitted to us.

Localised Negative Reserve Active Power Margin

If Localised NRAPM are not maintained then it may not be possible to alleviate incidences of thermal overloading, system instability and voltage problems following transmission system faults.

In the case of Localised NRAPM we will select and instruct Gensets for De-synchronising on the basis of Bid-Offer Data submitted to us and their effectiveness in restoring the Localised NRAPM to the required level.

In the event that we are unable to differentiate between Gensets according to Bid-Offer Data and/or their effectiveness in restoring any Localised NRAPM, we will, where time permits, select Gensets taking into account their:

- effect on power flows (resulting in the minimisation of transmission losses) – Gensets that would lead to the greatest reduction in transmission losses being selected first
- Reserve/Response capability - Gensets with a lower response/reserve capability being selected in preference to Gensets with a higher capability (if instructing off);
- Reactive Power contribution - Gensets with a lower reactive power capability being selected in preference to Gensets with a higher capability;
- Dynamic Parameters – Gensets with more flexible dynamic parameters being selected in preference to those with less flexible parameters;

(d) **Black Start** (Detailed in OC9 of the Grid Code)

The need to invoke the Black Start process or the Re-Synchronisation of De-Synchronised Island process in accordance with OC9.

(e) **Maximum Generation Service**

The need to request the Maximum Generation Service would normally be in order to maintain system security in the event that all valid and feasible Bids and Offers have been accepted in the BM. Where possible, the request for Maximum Generation Service will take place prior to the instruction of any measures related to Demand Control under OC6 1.2.(c), (d) or (e) of the Grid Code. Information relating to the instruction of the Maximum Generation Service will be published on the BMRS as soon as reasonably practicable.

The Maximum Generation Service will only be instructed where a BMU has been instructed to, or is generating at, its Maximum Export Limit.

For the avoidance of doubt, valid and feasible Bid and Offers are those Bids and Offers which facilitate the delivery of energy within the relevant Settlement Period. Under certain exceptional circumstances, it may be necessary to invoke the Maximum Generation Service before all valid and feasible Bids and Offers have been accepted. These circumstances may include:

- (i) where the call off of available Offers would lead to an erosion of the system reserve for response below the required level;
- (ii) where the acceptance of relevant Offers would lead to the depletion of reactive reserves below the required levels; and
- (iii) where no other plant with suitable dynamics is available

For the avoidance of doubt, the decision to instruct the Maximum Generation Service will be taken based upon the prevailing system conditions on the transmission system. The price of other available actions offered through the BM will have no bearing upon the decision to instruct Maximum Generation Service

- (f) **Frequency Sensitivity** (Detailed in BC2.9.5 of the Grid Code)
The need to maintain adequate frequency sensitive Generating Units in accordance with BC2.9.5.
- (g) **Communication Failure**
Where unplanned outages of the electronic data communication facilities or National Grid Electricity Transmission plc associated computing facilities has occurred preventing normal BM operation.

Where we identify the requirement to issue Emergency Instructions, and time permits, we will do so with due regard to the following principles:

- (a) we will instruct those BMUs that are most effective in relieving the system problem;
- (b) where BMUs have a similar level of effectiveness in relieving the system problem we will select on the basis of submitted Bid-Offer Data;
- (c) where it is not possible to differentiate between the effectiveness or cost of BMUs we will instruct on the basis of:

- Effect on power flows (resulting in the minimisation of transmission losses) – BMUs that would lead to the greatest reduction in transmission losses being instructed first.
 - Reserve/Response capability – BMUs with a lower response/reserve capability being instructed in preference to Gensets with a higher capability;
 - Reactive Power contribution – BMUs with a lower reactive power capability being instructed in preference to BMUs with a higher capability.
- (d) where several BMUs have been instructed in response to an incident we will restore those units, where dynamic parameters and system conditions allow, in the reverse order of their instruction.

In the case of a BMU, Emergency Instructions may include an instruction for the BMU to operate in a way that is not consistent with the dynamic parameters, QPNs and/or export and import limits. In all cases (with the exception of the need to invoke the Black Start process or the Re-Synchronisation of De-Synchronised Island process in accordance with OC9 of the Grid Code) where we have issued an Emergency Instruction to a BM Participant and a valid and relevant bid or offer has been submitted, then we shall log a Bid-Offer Acceptance (BOA).

6 Involuntary Reductions

Under certain, mainly exceptional, circumstances we may need to take actions that will involve the involuntary reduction of generation or demand before all valid and relevant BM Offers have been accepted. Relevant BM Offers are defined as those being located in the correct geographic location and/or having the required dynamic parameters to

resolve the system problem in question. Reasons for such actions include:

- (i) where the call off of available Offers would lead to an erosion of the system response holding below the required level. (It should be noted that an instantaneous generation loss occurring at a time of depleted response holding could lead to a frequency deviation outside of statutory limits. In the extreme case the system frequency could fall below the trigger point for automatic low frequency demand disconnection – a minimum level of 6% of total system demand)
- (ii) where automatic curtailment measures have been initiated in response to an incident
- (iii) where the acceptance of relevant Offers would lead to the depletion of reactive reserves below the required levels
- (iv) where communication problems preclude the instruction of relevant Bid-Offers

Involuntary Reductions can arise either through our instruction (either manually or automatically) or following a system fault. Where we identify the requirement to call involuntary reductions, and time permits, we will do so with due regard to the following principles:

- (a) we will instruct Network Operators whose demand is most effective in relieving the system problem;
- (b) we will instruct those BMUs that are most effective in relieving the system problem;
- (c) where it is not possible to differentiate between the effectiveness of Network Operators' demand (or BMUs) we will instruct those

that will lead to the greatest reduction in transmission losses;
and

- (d) where several Network Operators (or BMUs) have been instructed in response to an incident we will instruct the restoration of demand (or BMUs), where dynamic parameters and system conditions allow, in the reverse order of their instruction.

PART C: PRINCIPLES UNDERLYING BALANCING MEASURES

- 1 We shall be responsible for making a forecast of 'GB National Demand' and '~~NGC Demand~~GB Transmission System Demand' (as defined in the Grid Code) and the periodic release of these forecasts to the Balancing Mechanism Reporting Agent (BMRA) in accordance with the timetable specified in the BC1, Appendix 2 of the Grid Code. This data is published by the BMRA in accordance with section Q, Sub Section 6 of the Balancing and Settlement Code.

- 2 Having regard to information provided to us by BSC Parties (including their forecast levels of electricity demand) and to the requirements of the licensed transmission system security standards, we shall undertake operational planning for the timescales year ahead to day ahead:-
 - (a) for the matching of generation output (including, if achievable, a reserve of BMUs to provide a security margin sufficient to maintain an acceptable level of short term supply security) with forecast demand after taking into account:
 - (i) BMUs availability, flexibility, prices and submitted dynamics;
 - (ii) transmission system capability;
 - (iii) electricity delivered to the transmission system from generation which is not required to submit Physical Notification (PN) data; and
 - (iv) any other relevant information.

 - (b) to enable maintenance on parts of the transmission system.

- 3 We will seek to comply with the above principles in deploying all available balancing measures in order to maintain system security at all times.

- 4 We will achieve balancing measures through the:
 - (i) acceptance of Bids and Offers submitted by generation and demand to the BM ;
 - (ii) call off of Ancillary Service contracts;
 - (iii) call off of other services which serve to assist us in operating the transmission system (including, for the avoidance of doubt, services from external system operators); and
 - (iv) instruction of Emergency Actions and other Involuntary Reductions.

In specific circumstances we will provide services to external system operators via System-to-System Services. On these occasions it is expected that we will procure Balancing Services to effect this service provision.

- 5 We shall call off balancing measures defined in 4(i), 4(ii) and 4(iii) in a cost order to maintain system balance. Under certain circumstances however this may not be possible. These circumstances include:
 - (i) urgent contingency action to restore operational standards on the transmission system;
 - (ii) technical constraints on the transmission system;
 - (iii) the observed and declared dynamic operating characteristics of available generation and demand Balancing Services;
 - (iv) other matters (such as those detailed in BC2.9) provided for in the Grid Code;
 - (v) failure of communication links; and
 - (vi) Services provided on Interconnector BMUs that could be operationally unacceptable to National Grid Electricity

Transmission plc, or commercially / operationally to the External Interconnected System Operator (EISO).

Once the problem in (i) to (vi) above has been contained, steps shall be taken to progressively return to a normal cost order.

6 Treatment of BMUs Disconnected by Transmission System Faults

Rarely, following transmission system faults ~~(see Part H)~~, BMUs may become instantaneously disconnected from the transmission system. Under such circumstances following the fault and prior to reconnection we would only issue a BOA to the affected BMUs if the trade provides immediate assistance to us in controlling the transmission system.

Following a transmission system fault which has caused disconnection, a BMU can only assist us in balancing the transmission system when:

- it is available to reconnect and return to its expected operating position in accordance with its submitted (or resubmitted) dynamics; and
- it can be reconnected to any part of the synchronised transmission system.

Under such circumstances a BOA may be issued to the BMU to delay the return to its expected operating position if the trade assists us in system balancing.

For the avoidance of doubt, in circumstances other than those described above, where a BMU submits a PN to connect to the transmission system, National Grid Electricity Transmission plc issue a BOA (or Emergency Instruction) within BM timescales if it wishes to change the proposed time of connection of the BMU.

7 Arbitrage Trades

Only if such opportunities arise in relation to performing our balancing obligations and where an economic advantage would be gained with no detrimental impact on system security would we undertake direct arbitrage trades within the BM.

8 Beyond the Wall Actions

On occasion, National Grid Electricity Transmission plc will issue BOAs that extend to the end of the current BM window ('the wall'). On these occasions, National Grid Electricity Transmission plc will issue BOAs to return the BMU to its PN level in line with submitted dynamics (subject to no change in the prevailing BMU data). Further details of these circumstances are provided below.

National Grid Electricity Transmission plc continually assess the various factors that affect system conditions. This may lead to a requirement for a continuing increase or decrease in BMU output, from its PN level, some time in the future that extends beyond the end of the current BM window ('beyond the wall'). In order to reflect the relevant BMU dynamics, National Grid Electricity Transmission plc may be required to issue a further BOA "beyond the wall". System Conditions and special circumstances will also be taken account of in these situations.

Beyond the wall actions will be taken on a BMU specific basis, subject to the following information:

- indicative PN's
- dynamic data
- indicative Bid-Offer prices
- export and import limits

- location of BMU
- reactive capability
- frequency response performance
- system conditions
- predicted weather conditions
- Ancillary Service contracts

The intention to issue a further BOA “beyond the wall” will be communicated to the relevant BMU Transaction Point in cases where a current BOA has been issued that extends up to the end of the current BM window (‘the wall’).

The intention to issue a BOA “beyond the wall” will be based on the submitted dynamic and price data for all anticipated BOA timescales. It is assumed that all dynamics and prices remain as submitted for all anticipated BOA timescales. For the avoidance of doubt, if the intention is to extend a BOA beyond the wall, indicative prices, dynamics and PN for periods beyond the wall must not change from those that were used in assessing the requirement for the BOA.

This intention to issue a BOA “beyond the wall” will be translated into an actual BOA after the start of each applicable Gate Closure period. Prior to the BOA being issued, all BMU data will be checked against that used during the initial assessment. Any material changes made from the data used during the initial assessment will lead to a review of the requirement.

9 Canceling of BOAs that extend beyond the wall

The unwinding of BOAs that are issued beyond the wall will be in line with that of standard BOA.

BOAs that are issued beyond the wall will be cancelled by returning the BMU to its PN in line with submitted dynamics taking into consideration any applicable price changes.

10 Pre Gate Closure BMU Transactions

This section explains the criteria used to select a BMU for a Pre Gate Closure Transaction. The reasons for requiring such a transaction are covered in the Procurement Guidelines Part B: section 4.

We, in the maintenance of efficient, economic and secure system operation, continually assess our requirements for within gate Balancing Services against our forecasts and participants' latest notified PNs.

These assessments may lead to a requirement for us to enter into an agreement to procure balancing services ahead of the Balancing Mechanism Window Period. Such pre gate requirements are referred to as Pre Gate Closure BMU Transactions (PGB Transactions).

PGB Transactions will be taken on a BMU specific basis and the following criteria will be used in the selection of BMUs that are potentially best able to meet the requirements:

- indicative PN's
- relevant BMU dynamics
- specialised BMU information e.g. dynamic parameters that differ from those submitted
- transmission constraints imposed on the system
- location of BMU
- reactive capability

- frequency response performance
- previous PGB Transaction performance (this will only be a factor where reliability is of significant importance and when a decision has to be made close to Gate Closure)
- associated ancillary service contracts

Using the above information, the most suitable BMUs that fit the requirements will be selected and contacted by telephone. An outline of the profile required will be communicated over the telephone to the selected BMUs. We will invite offers from the selected BMUs detailing the profile and price.

If system circumstances limit the timescales required for identifying and agreeing a PGB Transaction then it may be necessary to restrict the number of BMUs that we contact (for example a PGB Transaction required close to Gate Closure). In this case, the BMUs will be prioritised based on National Grid Electricity Transmission plc assessment of the BMUs that are likely to meet the criteria with due regard to the requirements in line with the Transmission License obligations not to discriminate. This assessment may include anticipated prices (informed by historic Bid-Offer and PGB Transaction prices) as a prioritisation factor.

Once all offers have been received, they will be assessed against the following criteria:

- Cost ; and
- Which Offer best meets the requirements based on the criteria set out above and the requirements described in the Procurement Guidelines (Part B, Section 4).

The successful BMU(s) will be contacted by telephone and the transaction formally agreed. We will expect to receive a modified PN in line with the transaction details within 15 minutes of the transaction.

- We are currently reviewing the overall Pre gate reserve procurement process, and will come forward with proposals once broad agreement has been reached with industry participants. This is likely to affect the process for the procurement of PGBT's.

PART D: TRANSMISSION CONSTRAINT MANAGEMENT AND RESPONSE/RESERVE PRINCIPLES

The broad principles that we will normally employ for the management of transmission constraints and response/reserve holdings are detailed below. It should be noted that transmission constraint management involves an iterative process over all planning timescales with, where possible, continued optimisation of the system as updates to relevant information are received.

It should be further noted that an indication of the extent to which the transmission system is constrained can be gained from the margin information that we are required to release under OC2 and BC1 of the Grid Code.

1 Transmission Constraint Management Principles

- Outage planning for the period year ahead to day ahead will be undertaken. In developing the outage plan for the transmission system co-ordination is required with other Network Operators (where Network Operators is as defined in the Grid Code).
- We will endeavour to place outages coincident with relevant generation outages in order to minimise constraint costs.

- Security analysis studies are undertaken as appropriate to confirm system security of the total transmission system and identify constraints.
- Forecasts of constraint costs are made and the outage plan re-optimised to minimise these where possible.
- Significant changes to forecast availability of BMU and/or the transmission system may trigger a reassessment of the outage plan and where possible the outage plan will be re-optimised.
- We may negotiate Balancing Services contracts to manage the financial risks associated with potential high cost outages.
- In calculating constraints we will take account of any pre and post fault actions available in order to minimise restrictions of generation capacity.
- In resolving constraints we will call off Balancing Services on a cost basis (with due regard to the criteria set out in Part C, paragraph 5). Where services can not be differentiated on cost or flexibility the service that delivers the greatest reduction in transmission losses will be called.
- During periods of system difficulties (for example severe weather conditions) we may modify constraint limits in accordance with level of system risk. In so doing consideration of the following criteria will be given:
 - (i) the likely duration of the system difficulties;
 - (ii) the likely increase in probability of system faults arising from the system difficulties; and

- (iii) the impact on system security of faults deemed likely to arise as a result of the system difficulties.

2 Constraint Management Processes

In the Year Ahead timescale, transmission constraints are minimised through careful planning of transmission outages. Within the current year, transmission constraints are calculated and optimised as necessary from 13 weeks ahead, down to day ahead timescales and in the pre Gate Closure control phase. Furthermore constraints are continually monitored and optimised in real time.

2.1 Year Ahead

Throughout the year ahead planning process, National Grid Electricity Transmission plc, generators, and other Network Operators exchange data relating to transmission system and generation outages for the following year. The content and timing of these data flows are currently specified under the OC 2 of the Grid Code.

Using a combination of this data and the National Grid Electricity Transmission plc estimated generation merit order, National Grid Electricity Transmission plc builds its transmission outage plan for the following plan year. In building the plan, the following principles are applied:

- (i) The necessary National Grid Electricity Transmission plc maintenance and construction programme must be accommodated.
- (ii) System security must be achievable at all times.
- (iii) Transmission constraints must be minimised.

Achieving these principles requires extensive security and economic studies of the planned transmission system.

Where this analysis identifies that some of the above principles cannot be met due to conflicting outage requirements, discussions take place between the parties involved to resolve the issues. The method of resolving conflicting requirements is set out in OC2 of the Grid Code.

Progress towards achievement of a final transmission operating plan is formally communicated at regular intervals throughout the planning year to generators and other Network Operators. These updates are specified under OC2 of the Grid Code.

2.2 13 Weeks Ahead / down to Day Ahead

The following process is undertaken across the above timescales, the objective being to ensure system security is achieved at minimum cost whilst meeting our system maintenance and construction requirements:

- Step 1 - Using our forecast of demand, BMU availability/running, BMU prices and the transmission outage plan, security analysis studies are undertaken. These studies involve the running of system analysis models that can determine system voltage, thermal and stability conditions.
- Step 2 - From the output of these studies system security is assessed. If security can not be achieved then the outage plan will be reviewed and revised accordingly.
- Step 3 - Transmission constraint boundaries will be identified and further studies will be undertaken to calculate the limiting power flows across these boundaries.
- Step 4 - At the day ahead stage, following receipt of PN data, the BM Start-up service may be called where appropriate to maintain system security of the transmission system.

Step 5 - The forecast costs of these constraints are then calculated and where necessary and possible the transmission outage plan will be revised.

2.3 Control Phase – Pre Gate Closure

In light of actual system conditions and revisions to our day-ahead forecasts, further security analysis studies will be undertaken to assess our transmission constraint requirements. Our plant requirements will also be re-assessed and suitable units requested to synchronise or de-synchronise depending on the outcome of this assessment. This will usually take the form of a BM Start-up service or in certain circumstances, as set out in the Procurement Guidelines, a PGB Transaction (see Part C Paragraph 9).

2.4 Control Phase – Real Time

System security will be continually monitored in real time through the use of 'on-line' security analysis studies based on actual system conditions. In light of these studies and actual BMU bidding, all transmission constraints will be continually reviewed and optimised to seek to ensure balancing costs are minimised.

3 Response/Reserve Holding Principles

The objectives of our response/reserve holding policy shall be to provide assurance, in so far as we are able, that reasonably foreseeable levels of generation failure, shortfall and demand forecast error do not cause us to invoke involuntary demand disconnection. In so doing we shall endeavour to adopt a response/reserve holding strategy that maintains the pre NETA level of short-term supply security.

Initially we will use pre-NETA supply security standards as a benchmark for our reserve and response policies. However we recognise that these policies may develop in the light of market circumstances and experience.

3.1 Response

Response is provided by sources that automatically react to frequency deviations and is required to manage instantaneous imbalances between generation and demand. There are three categories of response that we will contract for and these are detailed below:

(a) **Primary Response**

This is the automatic response to a decrease in system frequency which is increasingly effective with time over the period 0 to 10 seconds from the time of the frequency change (and fully available by the latter) and which must be sustainable for at least a further 20 seconds. In the event of a system infeed loss, primary response acts to contain the falling frequency.

(b) **Secondary Response**

This is the automatic response to a decrease in system frequency which is fully available 30 seconds from the time of the frequency change and sustainable for at least 30 minutes. In the event of a system infeed loss secondary response acts to restore the system frequency to operational limits.

(c) **High Frequency Response**

This is the automatic response (of reducing output from generation) to an increase in system frequency which is increasingly effective with time over the period 0 to 10 seconds from the time of the frequency change (and fully available by the latter) and which must be maintained (at no lesser reduction) thereafter.

The magnitude of the largest infeed set against the contribution of system inertia and reaction of demand to falling frequency will determine the primary and secondary response requirement. Generally speaking, as more generation is synchronised to meet increased demand the system has more stored energy in rotating machines meaning less response is required to contain the same generation loss. Similarly, as demand increases, the absolute reduction in demand in response to falling frequency increases.

Similarly the high frequency response requirement will be determined by the magnitude of the largest secured demand and the level of system inertia.

Response can be delivered by both dynamic (or continuous) and non-dynamic (or occasional) sources. Dynamic response is delivered continuously as system frequency deviates from target and is provided by part loaded generation. Non-dynamic response is delivered only when the system frequency reaches a set trigger point and is predominantly provided by contracted demand armed with low frequency relays.

In order that frequency can be contained within operational limits, and thereby minimise the risk of frequency falling outside of statutory limits, a minimum dynamic response requirement exists. The actual level of this minimum dynamic requirement is determined by our operational requirement to maintain the standard deviation of 5 minute spot frequency to 0.07Hz.

3.2 Reserve

Reserve is used to cover longer term imbalance between supply and demand caused by demand forecast error, plant failure, and the uncertainty associated with periods of rapid demand change. Reserve is also used to restore system frequency and response capability following a short-term loss. We have four categories for system reserve which are detailed below:

(a) Contingency Reserve

This will be delivered primarily through the BM Start-up service to ensure sufficient generation is available at gate-closure to meet system demand, system security and our response and reserve holding requirements. It effectively covers for longer-term (i.e. day ahead to pre Gate Closure timescales) plant losses and demand forecasting errors.

The initial assessment for contingency requirements will be made at the day ahead and revised throughout the control phase as certainty in both demand forecasting and generation availability increases.

The requirements for contingency reserve will be based on longer-term plant loss statistics, demand forecast error and demand BMU offers.

(b) Regulating Reserve

Regulating reserve is required to cover for short-term generation losses (i.e. post Gate Closure) and demand forecasting error and will be carried on part loaded synchronised generation or demand BMUs.

It is envisaged that initially this service will be provided by BMUs that are voluntarily submitting suitable Bids-Offers to the BM although, if insufficient volumes of regulating reserve can be obtained in this way or it is economic to do so, ancillary service

contracts may be put in place for the provision of this reserve service.

(c) Short Term Operating Reserve (STOR)

STOR is provided by contracted generation or demand reduction that can deliver reserve in short timescales. As with regulating reserve, it is required to cover for post Gate Closure plant loss and demand forecasting errors. STOR may be procured across differing timescales on an efficient basis in conjunction with consideration of wider obligations under the Transmission Licence.

Regulating reserve and STOR make up the total requirement dictated by Final Planning stage statistics and demand forecasting errors. The actual split between STOR and regulating reserve will be dictated by the economics of the provision of these services from the available sources across the relevant timescales.

(d) Fast Reserve

Fast reserve is a subset of regulating reserve and STOR, and is required for the maintenance of system frequency within operational limits. It is provided primarily by contracted generation that is capable of significantly increasing output within 2 to 5 minutes notice.

The volumes of fast reserves are determined by our operational standard to limit the number of frequency excursions outside operational limits (lasting greater than 10 seconds) below 1500 per annum.

3.3 Principles Relating to Response and Reserve Holding.

- We will calculate response and reserve holding levels based on the following criteria:
 - (i) BMU loss statistics
 - (ii) the largest generation infeed being covered
 - (iii) the largest secured system demand
 - (iv) demand forecast statistics
 - (v) system characteristics such as inertia and load response
 - (vi) judgement of levels of demand volatility/uncertainty
 - (vii) judgement of levels of generation uncertainty

- We will allocate response and reserve holding with due regard to:
 - (i) cost
 - (ii) dynamics of delivery (as detailed in 3.1 and 3.2 above)
 - (iii) transmission constraints

- We will not allocate response/reserve to constrained BMUs if the delivery of that response/reserve would result in violation of the constraint.

- During system difficulties (caused for example by severe weather conditions) we may strategically allocate response/reserve on a geographic basis to manage system risk. In so doing consideration will be given to the following criteria:
 - (i) the likely duration of the system difficulties
 - (ii) the parts of the system affected by the system difficulties
 - (iii) the likely increase in probability of response/reserve holding being affected by the system difficulties

- At all times we will endeavour to maintain sufficient levels of response on the system in order that the loss of the largest generation infeed would not result in a violation of the security standards.

- Following an event that leads to the delivery of response we will, as soon as is practical, take action to regain the level of response holding on the system such that system security standards would not be violated following a further generation infeed loss. Such action includes the instructing of STOR such that responsive BMUs can be brought back to their respective response holding levels.
- We will seek to hold sufficient high frequency response on the system to ensure that security standards are not compromised should the largest secured demand on the system trip.
- In achieving the above we will seek to ensure that there is a suitable level of generation capable of reducing output on the system at all times.

PART E: DAY AHEAD AND WITHIN DAY BALANCING

1. Day Ahead Balancing Process – Scheduling Phase

- Step 1 - By 09:00 hours each day we will publish our day ahead demand forecast covering the period 05:00 hours day ahead to 05:00 hours day ahead + 1.
- Step 2 - By 11:00 hours we will receive PN and other data from all BMUs covering the period 05:00 hours day ahead to 05:00 hours day ahead + 1 and default such data as is necessary.
- Step 3 - Using the submitted PN data, demand forecast and planned transmission outage information we will undertake security analysis studies to verify system security (Part F refers).
- Step 4 - For each half hour period from 05:00 hours day ahead to 05:00 hours day ahead + 1 the system BMU requirement (i.e. that required to meet system demand and system response/reserve levels) is calculated from the sum of forecast demand, scheduled reserve¹, contingency reserve and STOR (less that provided by contracted non BMU sources).
- Step 5 - For each half hour period from 05:00 hours day ahead to 05:00 hours day ahead + 1 the sum of BMU maximum export limits (MEL) is calculated based on the 11:00 hours PN submission.
- Step 6 - The system plant margin for each half-hour period is then calculated by subtracting the identified BMU requirement from 3

¹ Scheduled reserve is the total amount of headroom required to meet the level of regulating reserve and frequency response allocated to synchronised BMU.

MEL (after accounting for BMUs likely to be restricted by constraints).

- Step 7 - The system plant margin for each half-hour is therefore derived from:
- (3 MEL - 3 Constrained Off BMUs) – BM Unit Requirement
- Step 8 - If the system plant margin is negative then we will revisit the transmission outage plan and where possible make revisions in order to reduce the level of constrained off BMUs.
- Step 9 - If the system plant margin remains negative we shall, dependant on the level and duration of the shortfall and the time period to the shortfall, issue the appropriate system warning to the market.
- Step 10 - By 12:00 hours each day we will issue the total system plant margin data to the market for the period 05:00 hours day ahead to 05:00 hours day ahead + 1.
- Step 11 - We will forecast constraint costs based on the submitted indicative PN (and other BMU) data and our estimation of Final Physical Notification (FPN) levels and Bid-Offer prices and volumes. Depending on the forecast levels of these costs we will give consideration to the cancellation/deferral of transmission system outages.
- Step 12 - Where judged necessary we will seek to call off Balancing Services contracts (on a cost basis with due regard to the criteria set out in Part C, paragraph 5) to ensure, inter alia, that BMUs required to maintain system security are available for selection in the BM .

Step 13 - Following 11:00 hours we will continue to receive updated PNs from BMUs.

Step 14 - Using this updated data we will revise the national plant margin data and publish this together with zonal margin data by 16:00 hours.

2. Within Day Balancing Process – Control Phase

Step 1 - At defined times we will revise and release to the BMRA in accordance with 6.1.7 of Section Q of the Balancing and Settlement Code half-hourly averaged demand forecasts.

Step 2 - As participants become aware of changes to their physical position they will be expected to advise us of those changes.

Step 3 - At defined times, using the latest demand forecast, PN and other BMU data, the zonal and national margins will be reassessed and released to the BMRA in accordance with 6.1.7 of Section Q of the Balancing and Settlement Code.

Step 4 - Using the revised data we will undertake security analysis studies and reassess the requirements for the call off of Balancing Services contracts or Other Services such as PGB Transactions.

Step 5 - At Gate Closure the PN data will become FPN data and we will have received Bid-Offer Prices and volumes for those BMUs wishing to actively participate in the BM.

Step 6 - In the BM, using the revised demand forecast and validated FPN and Bid-Offer Data, we will seek to balance the system (on a minute by minute basis) through the purchase of Balancing Services on an economic basis taking into account:

- (i) urgent contingency action to restore operational standards on the transmission system;
- (ii) technical constraints imposed on the system from time to time;
- (iii) the dynamic operating characteristics of available generation and demand balancing services;
- (iv) where BOAs are expected to be issued for periods beyond the wall, those Bid-Offer Prices associated with all BOA timescales, PNs and dynamics for the BMU;
- (v) uncertainty in demand at timescales within the BM window;
- (vi) other matters provided for in the Grid Code; and
- (vii) Services provided on Interconnector BMUs that could be operationally unacceptable to National Grid Electricity Transmission plc, or commercially / operationally to the External Interconnected System Operator (EISO).

In extreme situations this may require the instruction of Emergency Instructions and/or Involuntary Reductions as defined in Part B Sections [35](#) and [46](#).

PART F: SUMMARY OF GB OPERATIONAL SECURITY STANDARDS

1 Overview

We shall seek to economically maintain security on the transmission system such that for normal and outage conditions, for a **secured event** there shall not be:-

- a loss of supply,
- a violation of the **system frequency control standard**,
- a violation of the **system voltage control standard**,
- system instability,
- unacceptable overloading of apparatus.

Excluding the exceptions below a **secured event** is defined as the fault outage of:-

- a single circuit overhead line,
- a double circuit overhead line,
- a designated pair of single circuit overhead lines concurrently during the defined winter season,
- a single circuit cable,
- a section of busbars or mesh corner,
- a supergrid transformer,
- a reactive compensator,
- the most onerous single system infeed.

For demand groups with a net import of up to 1500MW a **secured event** is defined as the fault outage of:-

- a single circuit overhead line,
- a single circuit cable,
- a supergrid or grid transformer or reactor,

- the most onerous single system infeed.

1.1 Exceptions

The standards may be relaxed for connections for which a derogation (approved by the Authority) from Standard Condition C17 of the Transmission Licence is in force.

For demand groups with a net import of less than 300MW and under outage conditions then for a **secured event** a loss of supply is acceptable.

Loss of supply for a **secured event** is also acceptable under planned outage conditions subject to a restoration strategy agreed between the SO and the relevant party.

2 System Frequency Control Standard

We shall seek to economically purchase and schedule sufficient real energy reserve and response such that:

For a **significant event i.e.** any **secured event** which could result in sudden change between total mechanical power input and actual system demand which is in the range 300MW to 1000MW the system frequency shall not deviate by more than 0.5Hz and that for;

An **abnormal event i.e.** any **secured event** which could result in a sudden change between total mechanical power input and actual system demand which is in the range 1000MW to 1320MW the system frequency should not deviate by more than 0.8Hz.

For either significant or abnormal events any frequency deviation below 49.5Hz should not persist for more than 60 seconds, and system frequency should return to between operational limits within 10 minutes. If necessary we shall achieve, in exceptional circumstances, frequency control by demand control – as

required by the British Grid Systems Agreement (BGSC 12) and as specified in OC6 of the Grid Code.

3 Voltage Control Standard

Under normal system conditions we shall seek to purchase and economically schedule sufficient Mvar reserves in order to maintain steady state voltage levels such that:-

On the 400kV system each user connection site will normally remain within +/- 5% of the nominal value with a minimum/maximum range of +/-10% however voltages between +5% and +10% should not last longer than 15 minutes.

On the 275kV and 132kV system each user connection site will normally remain within +/- 10%.

Below 132kV the limits are +/- 6%.

In addition for any **secured event** we shall purchase and economically schedule sufficient Mvar reserves in order to limit voltage step change to:-

+/-6% at the user connection site after a **secured event**, relaxed to +/-12% for loss of a double circuit, busbar or mesh corner. This voltage step change relates to a period about 5 seconds after fault clearance. It must be possible for us to restore voltage at Grid Supply Points (GSPs) to 95% following automatic and manual action within 20 minutes.

+/- 3% at the user connection site for planned switch operations.

PART G: EXCEPTIONS TO THE BALANCING PRINCIPLES STATEMENT

Infrequently circumstances may arise which require us to operate outside the principles detailed in this statement. Such circumstances are listed below:

- (i) Black Start events (as detailed in OC9 of the Grid Code);
- (ii) where parts of the transmission system have become islanded (as detailed in OC 9 of the Grid Code);
- (iii) when emergency evacuation procedures have been invoked at our control centres or wide spread communication problems are experienced;
- (iv) where circumstances exist where not to do so would prejudice the safe and secure operation of the transmission system or would be in breach of statutory obligations;
- (v) where operational information indicates insufficient time is available to employ particular measures in accordance with the Statement if balancing is to be achieved; and
- (vi) where the Statement has been shown to be inappropriate and the Balancing Principles Statement modification procedures have been implemented but not completed.

For parts (i) to (iii) above we would issue the appropriate system warning in accordance with the Grid Code and occurrences of any of the circumstances above would be reported in our annual statement of performance against the Balancing Principles.

APPENDIX B

Procurement Guidelines

Effective from: 1 April 2007

Version Control

<u>Date</u>	<u>Version No.</u>	<u>Notes</u>
<u>20.03.01</u>	<u>1.0</u>	<u>Initial version</u>
<u>21.09.01</u>	<u>1.1</u>	<u>Revision to initial version to incorporate new intentions on the procurement of Fast Reserve</u>
<u>01.05.02</u>	<u>2.0</u>	<u>Annual revision incorporating updates to information provision and Licence Condition references</u>
<u>01.05.03</u>	<u>3.0</u>	<u>Revision following annual review</u>
<u>28.11.03</u>	<u>3.1</u>	<u>Revision to incorporate introduction of Maximum Generation Service, POT, and the development of demand side services.</u>
<u>01.05.04</u>	<u>4.0</u>	<u>Revision following annual review</u>
<u>04.10.04</u>	<u>4.1</u>	<u>Revisions to incorporate changes as a result of CAP071: the development of Maximum Generation Service</u>
<u>01.01.05</u>	<u>4.2</u>	<u>Revisions to incorporate changes relating to BETTA</u>
<u>15.07.05</u>	<u>4.3</u>	<u>Revisions to incorporate changes as a result of CAP076: Treatment of System to Generating Intertripping Schemes</u>
<u>02.09.05</u>	<u>5.0</u>	<u>Revisions to incorporate changes relating to the provision of warming data; and the informal annual review</u>
<u>06.04.06</u>	<u>6.0</u>	<u>Revision following annual review</u>
<u>01.11.06</u>	<u>7.0</u>	<u>Revisions to incorporate the replacement of the Warming & Hot Standby service with BM Start Up service</u>

<u>01.04.07</u>	<u>8.0</u>	<u>Revisions to incorporate Short Term Operating Reserve (STOR)</u>
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The Guidelines have been developed in consultation with the Authority. The Guidelines may only be modified in accordance with the processes set out in Standard Condition C16 of the Transmission Licence. We will continuously monitor the validity of the Guidelines and intend, in discussion with the Authority, to periodically review the form of the Guidelines and, where appropriate, make such revisions as are necessary.

In the event that it is necessary to modify the Guidelines in advance of issuing the annual updated version of this document, then this will be done in accordance with Standard Condition C16.

The latest version of this document is available, together with the relevant change marked version (if any), electronically from our website <http://www.nationalgrid.com/uk/Electricity/Balancing/transmissionlicensing/estatemnts/>

Alternatively a copy may be requested from the Regulatory Frameworks Manager. Full contact details are set out in Part E of this document.

CONTENTS

PART A **Introduction**

1. Purpose of Document

PART B **General Principles**

1. Balancing Services
2. Procurement Principles
3. Balancing Services Relationships
4. Taking Actions Outside the Balancing Mechanism

PART C **Balancing Services Required**

1. Types of Balancing Services
2. Description of Balancing Services
3. Demand Side Providers and Small Generators

PART D **Procurement Mechanisms**

1. Procurement Process
2. Procurement Communication Media
3. Procurement Summary

PART E **Information Provision**

1. General Provisions
2. Information Provision Contact
3. Information Provision Detail
4. Volumes of Balancing Services
5. Information Provision Summary
6. Future Developments

PART A: INTRODUCTION

1. Purpose of Document

This document sets out the Procurement Guidelines (“the Guidelines”) which National Grid Electricity Transmission plc is required to establish in accordance with Standard Condition C16 of the Transmission Licence. The purpose of these Guidelines is to set out the kinds of Balancing Services which we may be interested in purchasing, together with the mechanisms by which we envisage purchasing such Balancing Services.

The Guidelines are not prescriptive of every possible situation that we are likely to encounter, but rather represent a generic statement of the procurement principles we expect to follow.

The remainder of this document is structured in four parts. Part B sets out the broad definitions of Balancing Services, the general principles we expect to follow in procuring such services, the relationship between various Balancing Services and a description of when actions will be taken outside of the Balancing Mechanism (BM). Part C describes the kinds of Balancing Services we expect to procure and Part D sets out the procurement mechanisms we expect to utilise in procuring such Balancing Services. Part E contains historical Balancing Services volumes and describes other information we will provide to ensure that appropriate signals are available to market participants and other interested parties.

In the event that it is necessary to modify the Guidelines in advance of issuing the annual updated version of this document, then this will be done in accordance with Standard Condition C16 of the Transmission Licence.

The Guidelines have been developed in consultation with the Authority and Industry Participants. The Guidelines may only be modified in accordance with the processes set out in Standard Condition C16 of the Transmission Licence. We will continuously monitor the validity of the Guidelines and intend, in discussion with the Authority, to periodically review the form of the Guidelines and, where appropriate, make such revisions as are necessary.

The Guidelines make reference to a number of definitions contained in the Grid Code and Balancing and Settlement Code. In the event that any of the relevant provisions in the Grid Code or Balancing and Settlement Code are amended it may become necessary for us to modify the Guidelines in order that they remain consistent with the Grid Code and/or Balancing and Settlement Code.

In any event, where our statutory obligations or the provisions of the Grid Code are considered inconsistent with any part of these Guidelines, then the relevant statutory obligation and/or Grid Code provision will take precedence.

Unless defined in the Guidelines, terms used herein shall have the same meanings given to them in the Transmission Licence, the Grid Code and/or the Balancing and Settlement Code as the case may be.

The latest version of this document is available electronically from our website. Alternatively a copy may be requested from Commercial Frameworks Manager. Full contact details are set out in Part E of this document.

PART B: GENERAL PRINCIPLES

1. Balancing Services

The services that we need to procure in order to operate the transmission system constitute Balancing Services.

The Transmission Licence defines Balancing Services as:

- (a) Ancillary Services;
- (b) Offers and Bids made in the balancing mechanism; and
- (c) other services available to the licensee which serve to assist the licensee in co-ordinating and directing the flow of electricity onto and over the GB transmission system in accordance with the Act or the standard conditions and/or in doing so efficiently and economically, but shall not include anything provided by another transmission licensee pursuant to the STC.

Ancillary Services:

These services are described in Connection Condition 8 of the Grid Code and are services procured from Authorised Electricity Operators (AEOs) or persons that make interconnector transfers. These services can be mandatory or commercial in nature. They are not procured from electricity consumers.

Balancing Mechanism Offers and Bids:

These are commercial services offered by generators and suppliers and procured through arrangements set out in Paragraph 5.1, Section Q of the Balancing and Settlement Code. They represent a willingness to increase or decrease the energy output from Balancing Mechanism Units (BMUs) in exchange for payment. Accepted services are used to control the national and local balance of generation and demand.

"Other Services":

These are commercial services that can be entered into with any party, which are classified neither as Ancillary Services nor as BM Offers and Bids. These services can be provided by parties who are not AEOs. This category would include any service provided by parties that are not signatories to the Balancing and Settlement Code. Other Services may also include the procurement of energy for balancing purposes. Further details on 'Other Services' can be found in Part C.

2. Procurement Principles

When procuring Balancing Services, we will apply the following principles.

- Without prejudice to the factors below and after having taken relevant price and technical differences into account, we shall contract for Balancing Services in a non-discriminatory manner.
- In contracting for the provision of Balancing Services we will purchase from the most economical sources available to us having regard to the quality, quantity and nature of such services at that time available for purchase.

The types of issues considered with regards to quality and nature are best explained via an example. When considering a requirement for frequency response from two potential providers we will have regard to the quality, quantity and nature of frequency response available for purchase. In assessing the quality of the service we will consider, for example, the historical performance of the provider. In assessing the nature of the service we will

consider, for example, whether the nature of the provider's frequency response service is dynamic or static.

- Where there is, or is likely to be, sufficient competition in the provision of a Balancing Service we will seek to procure that service via an appropriate competitive process (identified in Table 1) or market mechanism, as described in Part D of this document. In such instances we shall provide a statement¹ indicating the processes and terms under which contracts will be awarded. Copies of these statements are available from the Information Provision Contact listed in Part E of this document.
- If we consider that there is insufficient competition in the provision of a Balancing Service (e.g. where there is some form of local monopoly) we shall contract for such provision on a negotiated bilateral basis.
- If Balancing Services are required over a relatively long term, we shall advertise that requirement as appropriate through the communication media set out in Part D of this document.
- If a third party requires Balancing Services, and if we secure provision of such services on their behalf, the associated costs of provision will be fully recharged to the party requiring such services.

3. **Balancing Services Relationships**

Both Ancillary Services and "Other Services" will be procured against the principles set out in this statement. It should be recognised that the volume of services procured will be constrained by economic and

¹ "statement" will be a hyperlink to an appropriate index page on our web-site.

technical factors, including the level and nature of services delivered through BM Offers and Bids.

Offers and Bids within the BM will be accepted in price order, after taking account of system technical limitations and dynamic parameters associated with the Offers and Bids. Taking account of these constraints, when all available Offers and Bids that can be accepted have been exhausted, emergency action may need to be initiated. Ancillary Services and "Other Services" can be considered collectively as services procured outside the BM. We will need to procure Ancillary Services and "Other Services" for:

- System Security - Services may be procured outside the BM if we consider that there will be insufficient Offers and Bids available within the BM to balance the system and maintain security of supply.
- Cost - Services may be procured outside the BM if we consider that it would provide an economic alternative to purchasing services through the BM .
- Differentiation - Services may be procured outside the BM if the required technical characteristics are not available through BM Offers and Bids.

4. **Taking Actions Outside the Balancing Mechanism**

Our consideration of whether to undertake actions within or outside the BM will be based on a forecast of the level and cost of services expected to be available within the BM . Contracts will be entered into outside the BM when we anticipate a shortage of appropriate Offers and Bids in the BM to meet system security requirements, or if we consider that such contracts will lead to a reduction in overall cost or

provide technical characteristics that are not available through BM Offers and Bids. The principles by which we will forecast the sufficiency or otherwise of Offers and Bids in the BM , and technical characteristics, are set out in the Balancing Principles Statement.

When considering what actions will be undertaken outside the BM or what actions will be taken before Gate Closure it is useful to examine energy related products separately from Other Services, in addition to Ancillary Services.

- Ancillary Service Agreements are normally entered into prior to Gate Closure such that prices and service capability are agreed well before they are exercised. Typically, Ancillary Service Agreements provide for the services to be exercised within Gate Closure timescales and for payments to be made in addition to those made within the BM. An example of this type of payment is the Frequency Response capability payment which is contracted for in advance and then made when a provider is placed in a state where it is capable of deviations in its output as a result of deviations in system frequency.
- In the case of Balancing Services not provided by AEOs, agreements are again normally entered into prior to Gate Closure. These services are exercised within Gate Closure timescales, but the providers will often not be a Trading Party within the Balancing and Settlement Code. An example of this is the provision of Frequency Response services from the demand side. This results in the contract being entirely outside the BM.
- For energy we will trade, subject to any restrictions set out in the Transmission Licence, using the same instruments as other traders. For example we will enter into agreements prior to Gate

Closure to pay a provider an option fee to ensure that energy is available in the BM. This option may then be exercised prior to or after Gate Closure.

- Where standard energy related products do not provide for our specific requirements, we will seek to amend the standard trading instrument by agreement. For example, for the provision of a MW profile from a specific BMU provider, we may choose to use a Pre Gate Closure BMU Transaction (PGB Transaction) or a Grid Trade Master Agreement Schedule 7A transaction to ensure that energy is delivered according to that MW profile. This could be used to synchronise or desynchronise BMUs with dynamics that extend outside the BM.

PART C: BALANCING SERVICES REQUIRED

1. Types of Balancing Services

We are interested in procuring the following types of Balancing Services:

Ancillary Services

- System Ancillary Services (Part 1), the mandatory services required to be provided by all licensed generators, of:
 - Reactive Power; and
 - Frequency Response.

- System Ancillary Services (Part 2), the necessary services required from some generators and provided if agreement is reached, of:
 - Black Start Capability;
 - Fast Start Capability; and
 - System to Generator Operational Intertripping

- Commercial Ancillary Services. The following services, required from some generators and provided if agreement is reached, of:
 - Enhanced Reactive Service;
 - Commercial Frequency Response Service;
 - Reserve Services; comprising:
 - Fast Reserve;
 - Short Term Operating Reserve;
 - and
 - BM Start -up.
 - Commercial Intertrips;
 - System-to-System Services (including Emergency Assistance);

Maximum Generation Service; and
Transmission Related Agreements.

Other Services

Other Services, other than those provided as an Ancillary Service, comprise:

- Reactive Power;
- Frequency Response;
- Short Term Operating Reserve;
- Fast Reserve; and
- Demand Intertrip.

Energy Related Products, comprising of:

- Forward Energy Trades;
- Power Exchange Trades;
- Energy Balancing Contracts.

A number of services are listed under both Ancillary Services and Other Services. This distinction arises from the definition of Ancillary Services in the Transmission Licence, which defines Ancillary Services as being provided by AEOs or interconnector parties. Thus where parties that are not AEOs provide a service, such as frequency response, then it is classified as an Other Service rather than an Ancillary Service.

2. Description of Balancing Services

2.1 Ancillary Services

There are two broad types of Ancillary Service, as defined in the Grid Code.

System Ancillary Services, which are divided into two parts, comprise Part 1 System Ancillary Services that are mandatory services required from all licensed generators and Part 2 System Ancillary Services that are necessary services provided by some generators, on a site by site basis, to meet specific system requirements where agreement is reached. Any Ancillary Service which is not a System Ancillary Service and which is provided by an AEO is termed a Commercial Ancillary Service.

System Ancillary Services comprise the services as set out in and described in Connection Condition 8.1 of the Grid Code:

- All licensed generators are required to provide Part 1 System Ancillary Services to ensure the provision of a minimum technical capability to deliver voltage and Frequency Response services.
- Some generators are required to provide the Part 2 System Ancillary Services of Black Start Capability and/or Fast Start Capability. Our additional requirements for these services depend on the actual and expected provision of such services by existing providers.

Additionally, some generators will be required to provide System to Generator Operational Intertripping Schemes as a condition of connection.

Future Requirements

We are interested in discussing arrangements with potential new providers of the Black Start Capability service. However, there is no requirement for any additional Fast Start Capability beyond the current provision from all existing providers. Requirement for System to Generator Operational Intertripping Schemes

will be dependent upon future system development and new connections to the Transmission System.

Commercial Ancillary Services, described in Connection Condition 8.2 of the Grid Code, are agreed bilaterally and set out, subject to satisfactory commercial terms, in an Ancillary Services Agreement. The Commercial Ancillary Services we expect to procure are:

- Enhanced Reactive Power Service - which exceeds the minimum technical requirement set out in Connection Condition 6.3.2 of the Grid Code. We will contract for such services as described in the relevant Reactive Power market arrangements (see Part D).
- Commercial Frequency Response Service - which provides for combinations of different technical characteristics (compared to mandatory frequency response services), together with alternative pricing arrangements. We contract for such services when the anticipated cost is lower than the alternative service provision.
- Reserve Services - these are instructed services required over a variety of time frames to deal with the matching of generation with demand. The services we expect to procure can be broken down into the following components:
- Fast Reserve – which is a fast acting, reliable, flexible service, provided by plant capable of increasing energy production or reducing energy consumption, at defined rates and within a defined time period. The details of this service will be described in the detailed statements associated with its procurement via tender (see Part D).

- Short Term Operating Reserve (STOR)- which is provided by either increasing generation to the system, reducing demand (or a combination of both) in defined timescales. The details of this service will be described in the detailed statements associated with its procurement via tender (see Part D).
- BM Start-up - Which is a service that allows National Grid to access MW from BM Units that would not otherwise have run, and are unable to start-up within BM timescales on the day. Firm payments for this service are made on a £/h basis, to remunerate the costs of preparing a BMU to start up and synchronise within BM timescales.
- Commercial Intertrip - this service is required to minimise the pre transmission line fault output restrictions that may apply to Power Stations. This service is the same as a normal intertrip with the exception of the generator not being obliged to provide the service as part of its connection conditions. There is a very limited and localised requirement for such a service.
- System-to-System Services (including Emergency Assistance) - these services provide for mutual support of the transmission system with other interconnected systems. These services are only required via interconnectors.
- Maximum Generation Service – this service is required to provide additional short term generation output during periods of system stress for system balancing. This service allows access to unused capacity outside of the Generator’s normal operating range. This service will be initiated by the issuing of an Emergency Instruction in accordance with the Grid Code

BC2.9.2, Section 4 of the CUSC and the Maximum Generation Service Agreement.

- Transmission Related Agreements - where connection arrangements result in a requirement for the output of a generator to be constrained due to events on the transmission system the commercial process is managed via a Transmission Related Agreement.

2.2 Other Services

As indicated in Part B, “Other Services” include services which are not classified as “Ancillary Services”, but technically can provide the same effect from different service providers. An example of “Other Services” would be Frequency Response provided by an electricity consumer (a party that is not an AEO).

Other Services may also include the purchases/sales of energy in connection with operating the transmission system and/or doing so economically and efficiently. Purchases/sales via bilateral forward contracts or through a recognised exchange will fall within this category. This includes PGB Transactions. The levels of procured energy will be included in the Balancing Services Adjustment Data (BSAD) which is submitted to the Balancing Mechanism Reporting Agent in line with the BSAD Methodology Statement for inclusion in the calculation of System Sell Price and System Buy Price in accordance with the Balancing and Settlement Code.

2.3 Prohibited Activities

We have been given discretion with regard to the procurement of Balancing Services, subject to a licence obligation to operate the transmission system in an efficient, economic and co-ordinated manner and under the umbrella of an incentive scheme.

We should be able to make the best use of the range of tools available to us including (but not limited to) energy contracts and option contracts called both inside and outside of the BM.

In addition to the licence obligation to operate the transmission system in an efficient, economic and co-ordinated manner, we are also prohibited from purchasing or otherwise acquiring electricity except pursuant to the procurement or use of Balancing Services in connection with operating the transmission system and doing so economically and efficiently (or with the consent of the Authority) with the result that we are prohibited from speculative trading.

In addition we are required to publish a range of information to market participants in relation to how we envisage procuring Balancing Services and energy purchases. Full details of the range of information that we will publish and details on where this information can be found on our web-site.

2.4 Buying Energy or Selling Energy Related Contracts

Reasons why we may buy or sell energy or energy related contracts forward include:

- To meet our mean forecast requirement for balancing energy.
- To provide options to meet potential variations from the mean forecast. The Reserve Services described above may fulfil this requirement.
- To reduce the total cost of balancing the transmission system using the BM. For example, if a certain volume of Offers are forecast to be required in the BM (e.g. for the purposes of establishing spinning reserve), it may be more

economic to purchase a volume of energy forward such that a reduced volume of Offers and Bids are required.

- Direct Arbitrage between different balancing instruments in order to yield a lower overall balancing cost. In order to comply with the Transmission Licence, this would only be valid if an immediate cost saving can be obtained by directly replacing one balancing instrument to fulfil a specific requirement with another which replaces the same requirement. An example of such a direct arbitrage could be to sell a 12-month contract and replace it with 2 consecutive 6-month contracts.

3. Demand Side Providers and Small Generators

We are interested in procuring Balancing Services from demand side providers subject to technical and dynamic considerations (where demand side providers, include demand reducers, demand increasers and small generators embedded on site).

Demand side providers provide 'Other Services' as defined in section 2.2 above. The types of Balancing Services that we are interested in procuring from demand side providers are the same as shown in the list of 'Other Services' provided in Part C, section 1.

Demand side providers are encouraged to participate in the standard market tender process we use to procure the following services (subject to meeting the minimum technical criteria):

- Reactive Power;
- Fast Reserve; and
- Short-Term Operating Reserve (STOR).

We are also interested in entering into bilateral contracts with demand side providers for the following services (again subject to meeting the minimum technical criteria):

- Frequency Response – provision of non-dynamic response via frequency relay initiated response;
- Fast Reserve – for demand side providers who are unable to participate in the standard market tender arrangements;
- Demand Intertrip – used to assist in maintaining local system security;
- BM Offers and Bids; and
- Energy Related Products.

Bilateral contracts with demand side providers are procured by the same means as for any other provider.

We are always interested in entering into bilateral discussions with demand side providers for the provision of specialised services where demand side characteristics preclude participation in our standard market tender processes, or there are enhanced services that can be provided.

We are interested in entering into discussions with the demand side about developing new services or market processes. Typically, we would develop new services through the use of contract trials in order to assess the service requirement, dimensions. Once proven, and where appropriate, the service details and procurement mechanism will be reflected in a modification to these Guidelines. Examples of those services that may potentially be developed further are:

- Fast Reserve by Tele switch control of meters
- Demand Management

1. **Procurement Process**

As indicated in Part B of these Guidelines, where sufficient competition exists, we will seek to contract for Balancing Services via some form of market mechanism. In other circumstances, bilateral contracts will be entered into with the service providers. In all such circumstances we will be mindful of our Licence obligations when entering into these agreements.

Market mechanism

This will normally be a tender based process for the selection and award of service contracts. In each case, the mechanism will include:

- a statement of our service requirements;
- the issuing of invitation to tender documentation, providing sufficient information to allow the provision of a service offer to be made, including standard contract terms and conditions;
- arrangements for governance of the process;
- a statement of principles and criteria that we will consider when evaluating the awarding of contracts; and
- a report providing information on previous tenders.

Schedule 3 of CUSC contains the market mechanism arrangements for Reactive Power. This information is supplemented by other information available on our web-site. The information noted above may be requested from the Regulatory Frameworks Manager. Full contact details are set out in Part E of this document.

Bilateral Contracts

Bilateral contracts may be required where limited competition exists in the supply of a service (taking into account locational factors where necessary). This may be due to special technical requirements of the

desired service, where some form of monopoly exists or the unique characteristics of certain individual providers.

Where we consider there to be a limited degree of competition, we will

- contact those service providers we believe to be capable of providing the required service or who have expressed an interest in providing the service in order to establish whether they wish to enter into a contract for the service in question; and
- offer non-discriminatory terms for the acquisition of the service.

However, if there is insufficient time to identify and contact other providers, we reserve the right to contract as appropriate to meet system security requirements.

Where we consider that no competition exists (such as the provision of a locational service), we will offer non-discriminatory terms for the acquisition of the required service.

2. **Procurement Communication Media**

We shall communicate any service requirement by contacting those parties that we believe may be interested in providing the service, including any existing or past service providers, and anyone that has expressed a prior interest in providing such services in the future. In addition, notification of tenders will normally be advertised in trade magazines as appropriate and via our web-site.

3. **Procurement Summary**

This summary Table 1 sets out the Balancing Services we expect or intend to procure and the mechanisms by which we expect to procure them. It also sets out the timescales over which we intend to procure those Balancing Services set out in Part C, section 1 of these Guidelines.

Table 1 BALANCING SERVICES SUMMARY TABLE

ANCILLARY SERVICES	MEANS OF PROCUREMENT	TIMESCALES
Part 1 Services		
Reactive Power	Mandatory Services Agreement pursuant to the CUSC	Evergreen
Frequency Response	Mandatory Services Agreement pursuant to the CUSC	Evergreen
Part 2 Services		
• Black Start	Bilateral contracts	Up to life of asset
• Fast Start	Bilateral contracts	Up to life of asset
• System to Generator Operational Intertripping	Entered into pursuant to the CUSC	Up to life of asset
Commercial Ancillary Services		
Enhanced Reactive Services	Contracts derived from Market tenders	Min Annual
Frequency Response	Bilateral contracts or contracts derived from market tenders	Min monthly via bilateral contract or tender process
Reserve		
• Fast Reserve	Bilateral contracts or contracts derived from market tenders	Min monthly via bilateral contract or tender process
• STOR	Contracts derived from Market tenders.	As required via tender process
• BM Start Up	Bilateral contracts	Evergreen
• Commercial Intertrip	Bilateral contracts	As required
• System to system services including Emergency Assistance	Bilateral contracts	Evergreen
• Maximum Generation Service	Bilateral contracts entered into pursuant under CUSC	As required

BALANCING MECHANISM OFFERS AND BIDS	Services are procured under the provisions of the Balancing and Settlement Code	N/A
OTHER SERVICES		Min Annual
Reactive Power	Contracts derived from Market tenders	Min Seasonal As required
Frequency Response	Bilateral contracts	
STOR	Contracts derived from Market tenders	Min monthly via bilateral contract or tender process
Fast Reserve	Bilateral contracts or contracts derived from market tenders	
ANCILLARY SERVICES	MEANS OF PROCUREMENT	TIMESCALES
Demand Intertrip	Bilateral contracts	As required
Energy Related Products	Procured via Markets/Bilateral contracts	As required

PART E: INFORMATION PROVISION

1. General Provisions

We shall publish information on the Balancing Services that we intend to procure. In doing so we will seek to provide market participants and other interested parties with sufficient information without compromising the commercial position of any contracting party.

As part of the provision of information we will provide BSAD. The calculation methodology used is set out in a separate document entitled "BSAD Methodology Statement" established by The National Grid Electricity Transmission plc under the Transmission Licence.

2. Information Provision Contacts

All queries regarding the provision of Balancing Services we intend to procure should be made, in the first instance, to:

Regulatory Frameworks Manager
National Grid
National Grid House
Warwick Technology Park
Gallows Hill
Warwick CV34 6DA

Email: BalancingServices@uk.ngrid.com

3. Information Provision Detail

In the circumstances where tenders are held we publish information on the outcome of these processes via market reports, which are available on our web-site. This is currently the case for Reactive Power (every six months), STOR (as required), Fast Reserve (monthly) and Firm Frequency Response (monthly). In addition information will also be published for Maximum Generation Service on a disaggregated basis.

4. Volumes of Balancing Services

Cost and Volumes of Balancing Services procured can be found in the Annual Procurement Report at the following link <https://ng.corpwww.net/uk/Electricity/Balancing/pg/>.

5. Information Provision Summary

Table 2 sets out the information on Balancing Services that we will make available to market participants and other interested parties. A number of services set out in Table 1 have been aggregated in Table 2 to ensure that we provide market participants and other interested parties with sufficient information without compromising the commercial position of any contracting party.

Table 2 sets out the volume and price information we are able to make available and the timescales over which the information will be

updated. In many cases the information will be provided pursuant to the BSAD Methodology Statement. In addition Table 2 sets out the source of the information, Hard copies of this information may be requested from the Regulatory Frameworks Manager. Full contact details are set out in section 2 above.

6. **Future Developments**

Information provision in the future will be integral to the development of new services and will follow the following principles :

- Information in relation to balancing activities undertaken by National Grid Electricity Transmission plc will be made available if it helps the efficient operation of the wider market;
- Ex-ante information will be made available if it helps the market to be in a position to balance without SO intervention; and
- Information will be made available to all parties at the same time, on an equal basis without discrimination or favour.

In conjunction, National Grid Electricity Transmission plc will aim to ensure that:

- Information transparency does not undermine an individual party's commercial confidentiality;
- Provision of information does not result in the SO becoming a 'distressed buyer';
- Information will not highlight where the SO has a locational specific constraint ;and
- any benefit to the wider industry from the provision of increased information should justify the costs of its provision.

7. **Disclaimer**

All information published or otherwise made available to market participants and other interested parties pursuant to these Procurement Guidelines is done so in good faith. However, no warranty or representation is given by National Grid Electricity Transmission plc, its officers, employees or agents as to the accuracy or completeness of any such information, nor is any warranty or representation given that there are no matters material to any such information not contained or referred to therein. Accordingly, no liability can be accepted for any error, misstatement or omission in respect thereof, save in respect of a misrepresentation made fraudulently.

TABLE 2: Balancing Services Information Provision Summary

<i>Balancing Service</i>	<i>Volume information</i>	<i>Price information</i>	<i>Timescale</i>	<i>Information Source</i>
Reactive Power	Historical utilisation figures set out in Reactive Power Market Report.	Default utilisation prices set out in CUSC Schedule 3, Part 1.	Invitation To Tender issued every 6 months.	Invitation To Tender available on our website.
	Utilisation volumes per BM Unit in the Reactive Power Market Report.	Full successful tender details by BM Unit in Reactive Power Market Report.	Market Report published every 6 months after each tender round (as set out in CUSC).	Market Report available on our website.
	Utilisation data on a lead and lag basis per BM Units.	Contractual information, including price, capability, commencement and term.	Information updated in line with Market Report.	Utilisation and contractual information to be available on our website.
	Reactive Power capability requirement index.		Index published from Tender Round 9 (i.e. contracts starting 1 April 2002, tender pack issued Sept/Oct 2001)	Index contained in the Reactive Power Invitation To Tender which is available on our website.

Balancing Service	Volume information	Price information	Timescale	Information Source
Frequency Response	Primary, secondary and high frequency response volume requirement curves and tables to indicate system need.	Part 1 System Ancillary Service – Holding rates for primary, secondary and high frequency response. Tendered Commercial Frequency Response - Price of tendered primary, secondary, and high frequency response.	Part 1 System Ancillary Service - Prices will be published monthly . Tendered Commercial Frequency Response – Prices will be published when tenders are received. System response volume requirement tables will be published monthly Requirement curves will be updated annually.	Primary, secondary and high frequency response prices, requirement curves, and tables are available on our website.
	MWh of Primary, Secondary and High Frequency Response held in each day of the Utilisation Month	The volume of response held will be broken down on a BMU basis	Response volumes will be published monthly.	Primary, secondary and high frequency response volumes are available on our website.
	Assumed Utilisation volumes (summed for all BM Units)	Total Imbalance Compensation (payment to all generators across the month)	Assumed utilisation and total imbalance compensation prices will be published monthly.	Assumed utilisation and total imbalance compensation prices will be published on our website.
STOR	Tendered volume and contracted volume from the latest tender round. System Reserve	Tender price information	STOR Market Information Report updated after each tender round.	All Information will be contained within the Market Information Report available on National Grid's Industry Information website.

<i>Balancing Service</i>	<i>Volume information</i>	<i>Price information</i>	<i>Timescale</i>	<i>Information Source</i>
	Requirements, and contracted volume from previous tender rounds in the year will be published in advance of next tender rounds			
Fast Reserve	Indicative volume requirement by Settlement Period Historic utilisation by day and average by Settlement Period	Total historic volume reported by three price bands (Bids and Offers)	Requirements published monthly in advance	This information will be published on our website
BM Start Up	Estimated Capacity Level (MW)	Hourly BM Start Up Payment Rate	As soon as practical after the issue of a new BM Start Up instruction, or change in status of an existing BM Start Up instruction	This information will be published via our website on a reasonable endeavours basis
Maximum	Contracted and available	Price submitted in £/MWh	Information to be	This information will be published

Generation Service	volumes to be provided on an ex ante basis including the volume that is automatically guaranteed payment. Delivered volumes to be published on a ex post basis.	as per the Maximum Generation Service Agreement	published at time of contract signature and updated as necessary. Information also to be provided on an ex post basis detailing aspects surrounding the utilisation of the service including instruction times, volume delivered and payments.	on our website
Energy Products	Total MW contracted (buy and sell) pre gate closure for Each Settlement period	Total cost (buy and sell) is contained within the BSAD	BSAD will be published at 5pm D-1. Also BSAD will be published half hourly at Gate Closure.	<p>A version of BSAD will be published at 5pm D-1 on our website. This version shows energy related costs and volumes (buy and sell)</p> <p>BSAD calculated in accordance with the BSAD Methodology Statement will be made available to the BMRA for publication each half hour.</p> <p>National Grid will make half hourly BSAD available to be published on the BMRS.</p>

<p>Pre Gate Closure BMU Transaction</p>	<p>For each Pre Gate Closure BMU Transaction, the specific BMU, volumes and price will be published.</p>	<p>Accepted offer will be entered on the BMRS warning screen at the time the transaction is agreed. All offers will be published as soon as practicable but at any event on a reasonable endeavours basis before the end of D+1.</p>	<p>The accepted offer will be displayed on the BMRS warning screen. All offers will be published on the National Grid web site.</p>
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