

# System Management Principles Statement UK Transmission

March 2009 version 2.5

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# SYSTEM MANAGEMENT PRINCIPLES STATEMENT

## Modification History

UNC Modification Reference Number	Date of Implementation	Notes
0044	1 <sup>st</sup> October 2005	Revised emergency cash-out and curtailment arrangements
0061	12 <sup>th</sup> December 2005	Facilitating further demand-side response in the event that a Gas Balancing Alert is triggered

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# SYSTEM MANAGEMENT PRINCIPLES STATEMENT

## Document Revision History

Version / Revision Number	Date of Issue	Notes
v1.0	2 <sup>nd</sup> October 2002	First version
v2.0	1 <sup>st</sup> April 2005	Modified to incorporate Mod 0710 and housekeeping and clarification changes.
V2.1	July 2005	Modified to incorporate Mod 009 (0733), Mod 0013a (740a), change name - Transco to Transco NTS and housekeeping due to new GT Licence structure
V2.2	13 <sup>th</sup> January 2006	Modified to incorporate Mod 0044, Mod 0061 and housekeeping (National Grid rebranding) changes
V2.3	9 <sup>th</sup> June 2006	Part D.4 Eligible balancing actions – assessment of bids and offers. Removal of the 'timing' sub-section as per Ofgem decision letter on SMPS consultation (V2.2) dated 9 <sup>th</sup> June 2006
V2.4	March 2008	Updated licence reference in Glossary "Special Condition C8B part 2 14 (9) (h)" replaced with "Special Condition C8F (3) (i)"
<u>V2.5</u>	<u>March 2009</u>	<a href="#"><u>Annual consultation in respect to National Grid Gas NTS GT Licence "Special Condition C5 8a"</u></a> <a href="#"><u>Minor housekeeping changes.</u></a>

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## PART A: INTRODUCTION

### 1. Purpose of the document

This document sets out the System Management Principles Statement ("the Statement") which National Grid National Transmission System (NTS) is required to establish in accordance with Special Condition C5: "Licensee's procurement and use of system management services" of its Gas Transporters Licence ("the Licence") ("the Special Condition") and granted pursuant to section 7 of the Gas Act 1986 (as amended) ("the Act"). The purpose of the Statement is to describe the basis on which National Grid NTS will employ system management services. The Licence places an obligation on National Grid NTS to operate the system in an efficient, economic and co-ordinated manner.

The Statement has been developed to accompany National Grid NTS' System Operator (SO) incentive schemes and should be read in conjunction with the Procurement Guidelines and (if appropriate) the System Management Services Adjustment Data methodology.

National Grid NTS recognises that its SO incentive schemes create commercial incentives that need to be considered in conjunction with its other obligations and therefore this document is designed to indicate the broad framework against which National Grid NTS will make system management decisions.

Defined terms; where Uniform Network Code (UNC) and/or National Grid NTS Gas Transporter (GT) Licence defined terms are included within this document, the terms shall take the meaning as defined within the UNC and/or GT Licence. This document should therefore be read in conjunction with the prevailing UNC and/or GT Licence.

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### 2. National Grid NTS Performance

In responding to the System Operator (SO) incentive schemes and performing functions described in this document, National Grid NTS will seek at all times to follow the guidelines contained within and shall seek to act in good faith and in a reasonable and prudent manner in its dealings, save to the extent that:

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- there is any standard of performance already provided for by any statute, regulation or Licence condition to which National Grid NTS is subject; or
- the continued exercise of the discretions or functions described herein could cause National Grid NTS, in its reasonable opinion, to come into conflict with any provision of statute, the Licence or other regulation.

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The Licence imposes on National Grid NTS an obligation to operate the system in an efficient, economic and co-ordinated manner. Ofgem has indicated that it would expect the obligation to be satisfied where National Grid NTS is responding to the commercial incentives in its SO incentive schemes. However Ofgem has indicated that National Grid NTS' behaviour should be appropriately constrained by the economic, efficient and co-ordinated obligation, for example, when its commercial incentives are no longer considered to be effective - such as when revenues relating to one or more incentive schemes are, or are expected to be, either greater than the incentive cap or lower than the incentive collar.

### 3. Change process

The Statement has been developed by National Grid NTS and the form of the Statement has been approved by the Authority. It may only be modified in accordance with the processes set out in the Special Condition. National Grid NTS will monitor the operation and application of the Statement and it is National Grid NTS' intention that it will meet Users on a periodic basis to review the operation of the Statement and, where appropriate, to consider modifications to the Statement.

The Statement makes reference to a number of provisions contained in the Uniform Network Code (UNC). In the event that any of the relevant provisions in the UNC are modified it may become necessary for National Grid NTS to seek an amendment to the Statement in order that it remains consistent with the UNC. Prior to any such amendment the UNC shall take precedence over the Statement.

For the avoidance of doubt, this Statement does not form part of the UNC.

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## PART B: GENERAL PRINCIPLES AND CRITERIA FOR SYSTEM MANAGEMENT ACTIONS

### 1. Licence Duties

In establishing the Statement, the Licence requires National Grid NTS to set out the principles and criteria by which it will determine, at different times and in different circumstances, which system management services it will use to assist it in the operation of the NTS, and when and for what purpose it would resort to measures not involving the use of system management services in the operation of the NTS. Furthermore National Grid NTS must act in a manner consistent with its statutory obligations to develop and maintain an efficient and economic pipeline system for the conveyance of gas, and avoid undue preference or undue discrimination in the connection of premises to the system or the conveyance of gas through the system.

National Grid NTS' other principal regulatory obligation when carrying out system management actions is to take all reasonable steps to do so in accordance with the Statement.

Whilst the SO incentive schemes might be considered to be a primary driver for National Grid NTS to become more dynamic and responsive to developments in the market place, National Grid NTS is obligated, subject to the exclusions defined herein, to adhere to the Statement. National Grid NTS must periodically deliver to the Authority and each User an externally audited report to determine whether National Grid NTS has deployed system management measures in accordance with the Statement. Additionally National Grid NTS is required to report whether any modification should be made to that Statement to reflect more closely the National Grid NTS practice.

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### 2. Criteria

The Statement cannot set out the particular system management measures to be employed by National Grid NTS in every possible operational situation. The criteria applied in respect of deployment of system management services will take account of the SO Incentives; the obligation to be economic, efficient and co-ordinated; risk management considerations; the detail of considerations outlined in Part C; and the aims included in Part F of this document.

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The Special Condition recognises that in certain circumstances it may be necessary to depart from the Statement, but that such departures need to be considered before deciding whether the Statement needs amendment. The reasons for departing from the detail of the Statement may include:

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- where to not depart from the Statement would prejudice the interests of safety;

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- where operational information indicates insufficient time is available to employ particular measures in accordance with the detailed processes defined herein if required effects are to be achieved;
- where the Statement has been shown to be inappropriate; or
- where National Grid NTS considers it to be more economic, efficient or co-ordinated to do so.

### 3. System Management Tools

National Grid NTS' System Management tools are designed to deliver flow rate changes for management of the system. Some tools are direct (e.g. Constrained LNG, demand side interruption). Others are less direct (e.g. entry capacity buyback, On-the-day Commodity Market (OCM) NBP title or over-the-counter (OTC) NBP transactions) and are used where commercial actions are anticipated to give rise to flow rate changes as a result of the changed commercial circumstances of market participants.

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National Grid NTS' use of such tools will be influenced by the financial implications of its incentive arrangements, the necessity to achieve timely gas flow rate changes on the system and its broader obligations.

National Grid NTS shall have discretion over which system management services envisaged within the Procurement Guidelines that it may deploy.

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Whilst not required as part of the requirements of this document, National Grid NTS may also utilise interruption in accordance with the terms of the UNC for the purposes of system management. The UNC allows for interruption to be used for:

- constraint management purposes, i.e. to address a Transportation Constraint on the NTS;
- emergencies; or
- testing.

### 4. Timing of Actions

National Grid NTS will determine whether measures will be employed close to the time of gas flow, taking account of programmed system inputs, forecast outputs and/or projected key pressures for each Gas Day and as a result of information received for the Gas Day from all sources including LOPs (with connected facility operators) and User Nominations. By taking account of the information received from these sources, National Grid NTS will make operational decisions using the processes set out in this document.

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National Grid NTS may also take actions well ahead of the Gas Day. This may be to reduce the size or cost of actions, or to improve the estimated risk profile against the System Operator Incentive Schemes where it is anticipated that system management action would be necessary close to, or

during, the Gas Day. National Grid NTS may use any other information, or its own assessments, to determine whether such actions would be appropriate.

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### 5. Information Provision

Where National Grid NTS' deployment of system management services has a primary impact upon Users' exposures, National Grid NTS will, as soon as reasonably practicable after such deployment, indicate to Users the impact of such deployment on charges. For example, Users currently have exposure to entry capacity overrun charges whose calculation may depend on values associated with, for example, relevant Capacity Management Agreements. Similarly, energy imbalance cash-out prices are likely to be a function of the system management service tools deployed to ensure the appropriate system balance position.

In respect of system management services where such deployment only has a secondary effect on Users (for example via impacts in the SO Commodity Charge or via cost apportionment methodologies) National Grid NTS will have discretion as to what information about the deployment of system management services it publishes and when.

Sufficient information to establish the basis for any charges will either be released to support invoiced amounts or made available to an industry, or Ofgem-appointed auditor to confirm the validity of the charges.

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### 6. Emergency Procedures

Under the circumstances defined in National Grid NTS' Emergency Procedure documentation National Grid NTS Network Gas Supply Emergency Procedures (National Grid NTS/E/1) and the National Grid NTS Local Gas Supply Emergency Procedure (National Grid NTS/E/2) under which Emergency Procedures would be invoked, the processes and procedures in that document shall supersede all considerations arising from this Statement.

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## PART C: STATEMENT UNDERLYING SYSTEM MANAGEMENT ACTIONS

### 1. System Management Measures and Other Actions

Users are able to take actions that affect physical flow changes on the system, which may generate gas flows or an expectation of gas flows that the system cannot, or is unlikely to be able to, accommodate. When such flows, or projected flows, are unacceptable either from an energy supply/demand or from a localised transportation capability perspective, National Grid NTS may choose to use any operational flexibility, including but not limited to NTS compression and/or linepack to manage the situation, or to have recourse to a wider range of tools.

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In respect of energy supply/demand balancing National Grid NTS fulfils a role of “residual system balancer”.

In respect of capacity management, National Grid NTS makes incremental capacity sales and manages excess capacity rights. This role extends to facilitating shipper to shipper trading of system entry capacity. In addition, National Grid NTS may use Locational energy buys and sells via the OCM for capacity management. National Grid NTS might;

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- Sell locational gas upstream of a Transportation Constraint.
- Scale back interruptible entry capacity where there is no Entry Capacity Shortfall.
- Buy back firm entry capacity where there is no Entry Capacity Shortfall.

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National Grid NTS also buys and sells gas and procures other services to cover a range of commercial and operating needs including shrinkage and Operating Margins, subject to the restrictions placed on it by Special Condition C4 of the Licence.

### 2. Overview of “Close to Gas Flow” System Management Decision Process

Part E of this document describes the basis for the deployment of contractual tools that may be utilised well ahead of gas flow where, in National Grid NTS’ opinion, such usage may deliver better performance or risk management against the SO incentive schemes (having regard to National Grid NTS’ other obligations). Such tools will be used to mitigate the risks associated with flow management actions close to the time of gas flow.

However, it may not be efficient, prudent or even possible, to rely exclusively on forward contracting to manage system flows within system capabilities. Therefore National Grid NTS’ policy in respect of both procurement and deployment of system management services may well involve a combination of forward contracting activity with additional purchases/sales and

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deployment of tools much closer to gas flow. The consideration of which tools to procure and deploy will depend upon National Grid NTS' perception of the inherent risk/rewards associated with particular positions. Therefore this section is designed to define the considerations that will feature in the "close to gas flow" system management decision processes.

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System management decisions made on the basis of actual or imminent gas flows will be taken based on the physical and commercial circumstances prevailing, or expected to prevail, at any time. It is recognised however that reliance on application of tools very close to the time of gas flow may generate high unit costs for such system management actions. Hence as an alternative National Grid NTS may use contractual tools (developed to assist system management efficiency), taking account of the risk/reward balance, well before actions are operationally required. This section focuses on the processes that will be applied to the management of physical flows.

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Economic and efficient operation of the system is likely to be achieved by having the flexibility to deploy tools at any time (e.g. application of energy or capacity tools very late in the gas day). However, other imperatives may imply that this is undesirable and hence National Grid NTS would not generally expect to take actions between midnight and the end of the gas day in respect of that gas day.

In the event of a National Requirement (defined later) system management actions may be needed where linepack levels are anticipated to move outside ranges determined by National Grid NTS.

In the event of a Localised Requirement (defined later) system management actions may be needed where actual or projected key operational parameters or local linepack levels are anticipated to fall below or exceed an acceptable level. Such ranges will take account of the various incentive schemes, having due regard to other obligations and always in a manner designed to maintain the safety of the system.

Any such system management actions will be employed by National Grid NTS in accordance with a particular process as set out in paragraph 3 below.

### 3. Requirements to Employ System Management Measures and Processes

For the purposes of this Statement:

- a National Requirement to use system management measures is one that affects the whole NTS ("National Requirement"); and
- a Localised Requirement to use system management measures is one where the measures are targeted at a specific location or locations of the NTS ("Localised Requirement").

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It should be noted that system management measures are only employed to address a Localised Requirement in accordance with the defined processes in so far as the particular system management measures may reasonably be expected to alleviate the constraint or resolve the deficit.

3.1 National Requirement

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A National Requirement to use system management measures will be triggered in the event that the linepack level is, or is projected to be, outside a range determined by National Grid NTS as part of its system management action decision process. The timing and extent (if any) of the associated system management action will take account of commercial and operational drivers.

A National Requirement to use system management measures is determined by the following process:

Step 1 - Ahead of the Gas Day the linepack target and the associated bandwidth (which may be zero) will be set taking account of both operational and commercial considerations. If forecast outputs substantially change, or supply or demand patterns change significantly, then the target linepack and bandwidths could be amended.

Should the Projected Closing Linepack (PCLP) imply that National Grid NTS cannot take an action which is consistent with improving its performance under the linepack incentive component introduced as a result of the relevant SO incentive scheme, then National Grid NTS may reset the linepack target.

Step 2 - Determine start of Gas Day NTS linepack level (before start of Gas Day this will be a forecast; after the Gas Day commences this will be a known value).

Step 3 - Review programmed NTS inputs for Gas Day.

Step 4 - Review forecast NTS outputs for Gas Day.

Step 5 - Compare PCLP with target linepack level determined in Step 1 both before and within the Gas Day. In the event that the PCLP is outside the linepack bandwidth, a National Requirement to consider system management measures is implied. Any such requirement may result in the taking of a system management action.

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NB. The above implies no immediate requirement to take a system management action; any such action may be deferred.

National Grid NTS shall have discretion in respect of which system management services envisaged within the Procurement Guidelines it may deploy.

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The primary system management tools available for National Grid NTS to use when a National Requirement is triggered are:

- the OCM, and;
- the OTC when taking Eligible Balancing Actions for a Gas Day on, or for which a GBA has been triggered, as described in Part D.5.

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The basis for the assessment of OCM (and/or OTC) bids and offers that might be taken by National Grid NTS as an Eligible Balancing Action is described in Part D.4.

### 3.2 Localised Requirement (Output Capacity Constraint, Supply Deficit, or Plant Failure)

A Localised Requirement (Output Capacity Constraint, Supply Deficit or Plant Failure) to use system management measures is determined by the following process:

**Step 1-** Determine key operational parameters that are to be maintained throughout the Gas Day.

**Step 2 -** Before and during the Gas Day maintain projections of key operational parameters based on programmed NTS input and forecast outputs, pipeline and plant availability and network configuration.

**Step 3 -** Forecast and review key operational parameter projections.

**Step 4 -** Refine network configuration (including compressor utilisation and NTS offtake profiling rate management) taking account of system management costs/benefits in the light of the SO incentive schemes and economic and efficient system operation considerations. Iterate as appropriate.

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**Step 5 -** If key NTS operational parameters are projected to fall outside acceptable ranges determined by National Grid NTS (for example, due to a localised capacity constraint or a supply deficit or a plant failure) a Localised Requirement to use system management measures is triggered.

National Grid NTS shall have discretion in respect of which system management services envisaged within the Procurement Guidelines it may deploy.

The primary system management tool available for National Grid NTS to use when a Localised Requirement (Output Capacity Constraint, Supply Deficit, Plant Failure) is triggered is the OCM.

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### 3.3 Localised Requirement (Input Capacity Constraint)

A Localised Requirement (Input Capacity Constraint) is determined as follows:

**Step 1** - Determine the System Entry Capability at the relevant location or locations based on current and forecast system status, network configuration, forecast demand and pipeline and plant availability

**Step 2** - Before and during the Gas Day monitor and adjust, if appropriate, the System Entry Capability against programmed NTS inputs at the relevant location or locations, forecast system status, network configuration, forecast demand and pipeline and plant availability for the Gas Day.

**Step 3** - Refine network configuration (including compressor utilisation and NTS offtake profiling rate management) taking account of system management costs/benefits in the light of the SO incentive schemes and economic and efficient system operation considerations. Iterate as appropriate.

**Step 4** - If flows exceed or are anticipated to exceed System Entry Capability at the relevant location or locations then a Localised Requirement (Input Capacity Constraint) to employ system management tools is triggered.

The primary system management tools available for National Grid NTS to use when a Locational Requirement (Input Capacity Constraint) is triggered are:

- scaling back of interruptible entry capacity;
- buying back firm entry capacity;
- use of other capacity tools, such as Capacity Management Agreements; and
- Locational buys and sells on the OCM.

If National Grid NTS uses tools other than those directly related to the recall of capacity then (should pressures rise to levels such that National Grid NTS envisages, in its opinion, a significant risk that if further actions are not taken the Maximum Permitted Operating Pressure will be exceeded) the use of tools to manage the commercial availability of capacity will ordinarily be invoked as soon as reasonably practicable. Such actions would involve the scale back of Interruptible Entry Capacity (including the determination of the Interruptible Curtailment Factor as required by the [Uniform Network Code](#)) and, if appropriate, the “Buy-Back” of Firm Entry Capacity and/or the exercise of any other capacity management tool then available to National Grid NTS. If the application of such tools has reduced the available capacity to levels that can be accommodated on the system (or where such service is unavailable) and flows in excess of such levels continue, or are expected to

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**PART C**

continue, then National Grid NTS may invoke the Terminal Flow Advice (TFA) process. Where flows have to be physically curtailed (e.g. where flows exceed the available System Entry Capacity and key system pressures are forecast to be exceeded), National Grid NTS will normally issue a TFA to restrict flows to the available capacity flow rate level.

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## PART D: SYSTEM MANAGEMENT

### 1. System Management Services

These are described in Part C of the Procurement Guidelines, which additionally describes the possible applications of each type of tool or service.

Specific services include:

#### **Energy Tools**

National Grid NTS may use the APX-operated On-the-day Commodity Market (OCM), or any other market, mechanism or contract to buy and sell gas for the purposes of system management.

#### **Capacity Tools**

National Grid NTS may use the UK Link capacity system, or any other market, mechanism or contract to buy and sell system entry capacity for the purposes of system management.

#### **Storage Service Tools**

National Grid NTS may procure any storage service from storage facility owners or operators, or any other market, mechanism or contract relating to physical or commercially based storage products for the purposes of system management.

#### **Constrained Storage Services**

National Grid NTS may incentivise Users holding storage services at particular storage locations to provide National Grid NTS with some control over gas flows into and out of such storage space.

Constrained Storage Services may be used to assist with the relief of output capacity constraints when the forecast demand is above the maximum pipeline capacity.

#### **Demand and Supply Management Services**

National Grid NTS may incentivise Users or end consumers to enter into contracts to affect desired gas flow offtake or delivery into the system.

#### **Other Commercial and Contractual Tools**

National Grid NTS may develop further services or enter into contracts that will enable it to better manage both its operational and commercial risks.

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## 2. Measures Not Involving System Management Services

### Linepack

The ability of the NTS to absorb differences between supply and demand is a finite resource known as linepack, and National Grid NTS will seek to utilise this linepack as a means of avoiding the deployment of other balancing measures. Use of linepack is in this sense not a balancing measure as it does not directly impact gas flows onto or off the system.

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### Gas Supply Emergency Procedures

The Gas Supply Emergency Procedures referred to in Part D section 3 below are those described in Part B section 6.

## 3. Operating Margins

It is possible that the above system management services may not deliver the required flow rate changes to achieve appropriate system management. In this event, National Grid NTS may need to deploy Operating Margins gas.

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The criteria for the use of Operating Margins are as follows:

Typically Operating Margins will be used to maintain system pressures in the period before other system management services become effective. Primarily Operating Margins will be used in the immediate period following a supplier alert, the identification of a demand forecast change or pipeline and plant non-availability.

The use of Operating Margins in the context of the above will normally be the minimum required for operational requirements, although National Grid NTS will have due regard to the SO Incentive Schemes and other obligations.

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A quantity of Operating Margins will be kept in reserve to manage the orderly run-down of the System following the exhaustion of all other storage gas and during periods of high demand, as detailed in the Emergency Procedures. Operating Margins may also be used to support system pressures on the Gas Day in the event of a compressor trip, pipe break or other failure or damage to transmission plant. Following the Gas Day of such an event, any ongoing reduction in capacity becomes the equivalent of a planned maintenance activity, and therefore cannot be supported by the use of Operating Margins.

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Furthermore, if the residual volume of Operating Margins at any point in the winter falls below the Operating Margins Profile at individual sites or the Aggregate Operating Margins Profile nationally, National Grid NTS will seek to replenish Operating Margins to the extent of the Operating Margins Profile or Aggregate Operating Margins Profile where it is practical to do so.

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## 4. Eligible Balancing Actions – assessment of bids and offers

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### *Financial Services and Markets Act 2000*

The Financial Services and Markets Act (FSMA) 2000, provides the legislative framework for those participants that operate on commodity-traded markets including the OCM and OTC gas markets. The FSMA applies equally to all participants (including National Grid NTS) that utilise the OCM and other, gas-traded markets. National Grid NTS will ensure that it undertakes its residual system-balancing role in accordance with the FSMA regulations.

### *Residual system balancing*

In order to maintain the safe and efficient operation of the Total System, National Grid NTS, in its role as a residual system balancer, will enter into various trades with Users via the OCM (and/or OTC). In undertaking this role National Grid NTS will, where necessary, accept all economic and efficient offers on the OCM/OTC. In assessing the economics and efficiencies of a particular offer, National Grid NTS will consider whether the combination of quantity, price and timing of that action is likely to result in a scaleable, positive impact on the supply-demand imbalance for the Gas Day (or days) that are being assessed.

Where all information available to National Grid NTS indicates that supplies into the NTS are at, or very close to, the anticipated maximum available, then National Grid NTS may be more likely to favour taking offers on the OCM Physical or Locational markets (e.g. identified demand side bids) rather than OCM NBP Title market offers, since National Grid NTS considers that in such circumstances these actions are more likely to produce a required direct physical effect.

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### *Price versus volume*

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In the unlikely scenario that a small volume offer is priced significantly higher than other offers for a Gas Day, then National Grid NTS would still include that offer in any assessment of an Eligible Balancing Action. However, National Grid NTS believes that it is prudent, economic, efficient and appropriate in relation to the legislative framework to accept offers in price-order and therefore, it is unlikely that in a fully functioning and liquid market such small volume, high-price 'isolated' offers would be accepted.

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### *Minimum threshold volume*

National Grid NTS believes that the minimum sized Market Balancing Action likely in itself to have a discernible impact on the total system imbalance position is approximately 3 GWh. Therefore, Market Balancing Actions intended to have a more immediate and tangible impact on the total system imbalance are likely to be in excess of 3 GWh. Such Market Balancing Actions might consist of multiple trades including 'minimum volume' bids/offers of 100,000 kWh.

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The smallest bid/offer volume of gas capable of being posted by Market Participants is 100,000 kWh. A bid/offer of this size is not likely in itself to have a discernible impact on the total system imbalance position but it would be accepted by National Grid NTS where it considers this to be economic and efficient in accordance with its Licence obligations.

## 5. Gas Balancing Alert

### Triggering a GBA

The Gas Balancing Alert (GBA) was developed in conjunction with the Ofgem-chaired Demand Side Working Group. The GBA seeks to encourage a market response to a tightening supply-demand position. National Grid NTS will issue a GBA, via ANS or on its website, in the following circumstances;

- On D-1, a GBA might be triggered should the forecast demand exceed a predetermined trigger level or an end-of-day supply loss of 25 MCM or higher be encountered.
- Within-day (D), a GBA might be triggered should an end-of-day supply loss of 25 MCM or higher be encountered.

The trigger level is set by National Grid NTS based upon the assessment of likely available supply deliverability as indicated in its Winter Outlook Report. Relevant storage deliverability will be removed from the trigger level when storage stocks and available Storage Flow Notices (SFNs) indicate that the proximity of relevant storage stocks to the relevant Safety Monitor levels (as defined in the UNC) are less than or equal to two days of maximum deliverability. A GBA refers to a specific Gas Day so further GBAs may need to be issued if the likely available supply deliverability problems are expected to run beyond that Gas Day.

Following the triggering of a GBA, National Grid NTS will undertake an assessment of *all* available market offers; OCM (and OTC) volumes, prices (including Multi-Day Assessment Price (MDAP), see Section 6), single day and multi-day. These markets offers will be assessed against the relevant Gas Day(s) for which an Eligible Balancing Action is required to address a supply/demand imbalance position. Since multi-day offers can cover up to 7 days, this means that the MDAP assessment might be made utilising up to 7 relevant Gas Days.

### OCM and OTC demand-side offers

National Grid NTS may, once a GBA has been triggered, and where a **National Requirement** has been identified, take Eligible Balancing Actions utilising the OCM and/or OTC, bi-lateral contracts with non-OCM Users where it is considered economic and efficient to do so. In doing so, National Grid NTS will consider all available offers including OCM (NBP Title, Physical and Locational), OTC, single day and multi-day offers.

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## 6. Multi-Day Offers

In addition, where it has been assessed as economic and efficient, National Grid NTS might undertake an Eligible Balancing Action for a specific Gas Day by accepting a 'multi-day' offer either on the OCM and/or through an OTC bilateral contract(s).

### *Assessment*

At the time of assessing a multi-day offer, National Grid NTS will take an informed decision, based on the information that it has available, as to the likelihood that the traded gas volumes might be required for subsequent days. National Grid NTS will undertake its decision based on the best information available at the time of the assessment, including (but not limited to) forecasts of supply and demand, recent supply-demand performance, notified outages, Users' nominations, and weather data. At the time of the acceptance of such multi-day offers, National Grid NTS will apply a 'probability' (see below) of requirement to every day of a multi-day offer.

### *Apportioning costs/revenues*

In order to apportion the costs/revenues of such trades for cashout and Balancing Neutrality purposes appropriately against those days where it has been identified that gas is required to address an actual or forecast supply/demand imbalance position;

1. National Grid NTS will apply the relevant probability prevailing at the time the trade is accepted.
2. The probability for each multi-day trade will be based on an evaluation of a **National Requirement** for each of the days included in the multi-day trade and will effectively be a 'Probability of Requirement' (PR) for each day in question.
3. A multi-day trade will be taken in accordance with FSMA regulations and the obligations placed on National Grid NTS by its GT Licence with consideration to the total effect of that particular trade across all Gas Days in that period.

### *Derivation of probabilities*

The probabilities will be based on an evaluation of a **National Requirement** for each of the next seven Gas Days once a GBA has been triggered, and will effectively be a "probability of requirement" (PR) for each day in question. The PR will then be used in the calculation of a revised multi-day 'assessment' price for each offer that is available.

National Grid NTS will evaluate and update the probabilities as and when new information, for example, supply forecast data becomes available.

### *Publication of probabilities to the market*

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Following a GBA trigger and, where multi-day offers are available on the OCM or OTC, National Grid NTS will publish to the market the probabilities that are to be utilised as soon as possible and at least within 1 hour. Publication will take place prior to any Eligible Balancing Actions being accepted that might include multi-day offers. NG NTS will also publish updated probabilities within an hour of being re-calculated.

*Use of revised multi-day assessment price (MDAP)*

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National Grid NTS will assess a 'GBA' Eligible Balancing Action against all the available OCM/OTC market offers in the revised price-order stack, i.e. by utilising any single day offer prices and the revised multi-day MDAP. Multi-day trades will be accepted where it is considered economic and efficient to do so relative to other System Management tools, and with due consideration to the total effect of that particular multi-day trade across all Gas Days in that period and FSMA 2000 legislation.

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*Market Information and reporting*

National Grid NTS will make available to the Users and the wider market the relevant information (where commercial confidentiality permits) that was utilised during the assessment of the multi-day trades that it accepts and provide the rationale for taking such trades, including the analysis underlying the probability assessments it took into account. National Grid NTS will disseminate such information to the wider market in an equitable and timely manner through appropriate media. These will include, but not necessarily be limited to, the Customer Forum, the Operational Forum and the NG NTS website. Further, National Grid NTS will provide the market with the opportunity to discuss the commercial, operational and information aspects of any GBA that has been triggered and resultant multi-day trades through the National Grid NTS Operational Forum and UNC Transmission Workstream.

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## PART E: SYSTEM MANAGEMENT TOOL DEPLOYMENT AHEAD OF THE DAY

Rather than wait for imminent gas flows to imply either a National or Localised Requirement for system management actions, it may be appropriate for National Grid NTS to deploy tools ahead of the gas day. This may be assessed on risk management, efficiency or cost grounds, amongst other considerations (as described elsewhere).

For example, it may be that gas flows at particular points are expected to exceed the capability of the system and so, rather than wait until close to gas flow to achieve the aims defined in Part F, it may be appropriate to consider deployment of system management tool(s) at an earlier stage. As a further example, if a Supply Deficit can be anticipated well in advance, it may be appropriate to use system management tools to encourage an appropriate gas flow change at the relevant location well ahead of gas flow.

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National Grid NTS will seek to develop and implement such tools wherever it appears viable to do so, taking account of its obligations to maintain a safe and secure system and its risk/reward profile defined in the context of the System Operator incentive schemes. National Grid NTS may also seek to develop new tools and liquidity to improve the effectiveness, range or cost of system management services in the longer term.

The deployment of such tools will be at the discretion of National Grid NTS and will be guided by consideration of the incentive schemes subject to National Grid NTS' other obligations.

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## PART F: DAILY SYSTEM MANAGEMENT CONSIDERATIONS

The following points represent the aims of system management processes close to the time of gas flow:

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- To maintain national/local linepack levels and other key operational parameters within predetermined operating ranges at all times within the Gas Day whilst ensuring safe operation.
- To address entry and exit constraints where flows are forecast to exceed assessed system capability.
- To implement interruption and give notice of potential interruption conditions.
- To identify potential operational or commercial requirements to use storage services (including Operating Margins).
- To facilitate efficient operation of the trading arrangements (e.g. in respect of shipper to shipper trading of System Entry Capacity).

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**PART G: GLOSSARY**

**Capacity Constraint** A constraint affecting part of the System which results in the gas flows in that part of the System needing to be restricted

**Gas Day** The period from 0600 hours on one day to 0559 hours on the following day

**GBA** Gas Balancing Alert

**Linepack** The volume of gas within the NTS pipelines calculated in accordance with the methodology for determining NTS Linepack which National Grid NTS is required to establish in accordance with Special Condition C8F (3) (i) of the Licence.

**LNG** Liquefied Natural Gas

**LOPs** Local Operating Procedures agreed between National Grid NTS and Delivery Facility Operators

**MCM** Million Cubic Metres

**NTS** National Transmission System

**OCM** On-the-day Commodity Market - Trading System or contingency balancing arrangements

**OTC** Over-the-counter market

**Projected Closing Linepack** The expected end-of-Gas Day linepack level

**SFN** Storage Flow Notice

**Supply Deficit** A shortage of supply affecting part of the system.

**System Operator Incentive Schemes** Incentive schemes established by Ofgem to encourage certain operational and/or commercial behaviours on National Grid NTS as System Operator.

**TFA** Terminal Flow Advice

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