

System Management Principles Statement

UK Transmission

Effective from 1 April 2017~~6~~

Published in accordance with Special Condition 8A of the National Grid NTS Gas Transporter Licence

SYSTEM MANAGEMENT PRINCIPLES STATEMENT

Modification History

UNC Modification Reference Number	Date of Implementation	Notes
195AV	1 st April 2009	Introduction of Enduring Exit Capacity Arrangements
0415	1 st December 2012	Revision of the Gas Balancing Alert Arrangements
0504	1 st March 2016	Demand Side Response (DSR) Methodology Implementation. Note – availability from 1 st October 2016.

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Document Revision History

Version / Revision Number	Date of Issue	Notes
v1.0	2 nd October 2002	First version
v2.0	1 st 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 th January 2006	Modified to incorporate Mod 0044, Mod 0061 and housekeeping (National Grid rebranding) changes
V2.3	9 th 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 th 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)"
V2.5	March 2009	Annual consultation in respect to National Grid Gas NTS GT Licence “Special Condition C5” Minor housekeeping changes.
V2.6	March 2010	Annual consultation in respect to National Grid Gas NTS GT Licence “Special Condition C5” Minor housekeeping changes.
V2.7	March 2011	Annual consultation in respect to National Grid Gas NTS GT Licence “Special Condition C5” Minor housekeeping changes to reflect Modification Proposal introduced.
V3.0	March 2012	Minor housekeeping changes.
V3.1	July 2012	Updated to account for the implementation of the daily Enduring Exit Capacity Regime.

Version / Revision Number	Date of Issue	Notes
V3.2	March 2013	Updated to take account of the implementation of Modification 0415 and its revisions to the GBA arrangements
V3.3	March 2015	Annual consultation in respect to National Grid Gas NTS GT Licence “Special Condition 8A”
V4.0	March 2016	Updated to take account of the Implementation of Modification 0504 introducing Gas Demand Side Response. Additional text to align the System Management Principles Statement (SMPS) with Article 9 of the EU Balancing Network Code.
	<u>V5.0</u>	<u>March 2017</u> <u>Revision to allow more flexibility in what will be posted under REMIT.</u> <u>Additional text to include all primary system management tools National Grid use to manage localised transportation capability.</u>

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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 8A: "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.

This document sets out processes and obligations which are aligned to and shall be interpreted and applied in accordance with applicable national and European law, notably Article 6 and Article 9 of Regulation EC 312/2014.

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.

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 this document and shall seek to act in good faith and in a reasonable and prudent manner in its dealings, save to the extent that:

- 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.

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 also 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.

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.

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.

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:

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

- 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. locational actions). 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.

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.

4. Timing of Actions

National Grid NTS will determine whether measures will be employed close to the time of gas flow, taking account of forecast system inputs and outputs and/or projected key pressures for each Gas Day as a result of information received for the Gas Day from all sources including Local Operating Procedures (LOPs) (with connected facility operators), User Nominations and DN Demand and Offtake information provided by the DNOs. 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.

National Grid NTS may also take actions ahead of the Gas Day. This may be to reduce the size or cost of actions, or to improve the estimated risk profile 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 and its own assessments, to determine whether such actions would be appropriate.

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.

Information designated by section 4(1) of the REMIT regulation as "inside information" will be made publicly available in a timely manner in the form of "urgent market messages" posted on the National Grid REMIT website (<https://www.remit.gb.net>). ~~The urgent market messages contain information relating to the availability of capacity.~~

6. Emergency Procedures

Under the circumstances defined in the procedure for Network Gas Supply Emergency Procedures (National Grid T/PM/E/1) under which Emergency Procedures would be invoked, the processes and procedures in that document shall supersede all considerations arising from this Statement.

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.

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

In respect of localised transportation capability, National Grid NTS makes incremental NTS capacity sales and manages excess NTS capacity rights. This role extends to facilitating shipper to shipper trading of NTS system entry and firm NTS exit capacity. In addition, National Grid NTS may use the following tools to manage localised transportation capability:

- Buy or sell locational gas¹
- Scale back interruptible NTS entry capacity¹
- Buy back firm NTS entry and/or exit capacity¹
- Scaleback Off-peak NTS Exit Capacity¹
- Flow swaps¹
- Offtake Flow Reductions¹
- Restrict the quantity of daily NTS Entry and/or Exit Capacity made available;
- Use other capacity tools, such as Capacity Management Agreements¹ and
- Operating Margins

National Grid NTS also buys and sells gas and procures other services to cover a range of commercial and operating needs including NTS shrinkage and Operating Margins, subject to the restrictions placed on it by Special Conditions 3A, 3B and Condition 8C of the Licence.

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

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Process

Part E of this document describes the basis for the deployment of contractual tools that may be utilised 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 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.

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.

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 in section C 3.1 below), 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 in section C 3.2 below), 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.

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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").

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

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

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Step 3 - Review notified NTS inputs for Gas Day.

Step 4 - Review notified NTS offtakes 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.

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.

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

- the OCM (Title Market);
- the OTC markets when taking Eligible Balancing Actions for a Gas Day on or for which a **Gas Deficit Warning** has been triggered, as described in Part D.5-; and
- Operating Margins

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.

If the steps described above fail to mitigate against flows being outside of system capability then National Grid NTS may consider other options open to it, up to and including either use of the Transportation Flow Advice process or initialising Emergency Procedures.

3.2 Localised Requirement

A Localised Requirement 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 - Determine the System Capability at the relevant location or locations based on current and forecast system status, network configuration, forecast and notified supply and demand, and pipeline and plant availability.

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Step 3 - Before and during the Gas Day maintain, forecast and review projections of key operational parameters based on notified NTS input and outputs, pipeline and plant availability and network configuration.

Step 4 - Refine network configuration (including compressor utilisation and NTS supply and 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.

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 tools available for National Grid NTS to use when a Locational Requirement is triggered are:

- scaling back of off-peak NTS exit capacity;
- scaling back of interruptible NTS entry capacity;
- Restricting the quantity of daily NTS Entry and/or Exit Capacity made available;
- buying back firm NTS exit and/or entry capacity;
- ~~scaling back of interruptible NTS entry capacity;~~
- Flow Swaps;
- Offtake Flow Reductions;
- use of other capacity tools, such as Capacity Management Agreements;
- Locational buys and sells on the OCM; and
- Operating Margins

National Grid NTS will explore the use of one or more of the above options to effect the most economic and efficient management of a localised requirement.

For the avoidance of doubt National Grid NTS will not be obligated to “Buy-Back” NTS Capacity holdings created as a result of a Shipper holding a negative capacity position.

If, having applied the system management principles set out above, flows in excess of system capability continue, or are expected to continue, then

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National Grid NTS may consider other options open to it, up to and including either use of the Transportation Flow Advice process or initialising Emergency procedures.

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 ICE Endex-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 NTS entry or exit capacity for the purposes of system management.

Storage Service Tools

National Grid NTS may procure any storage service from storage facility users, 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.

2. Measures Not Involving System Management Services

NTS Linepack

National Grid NTS may choose to use linepack (i.e. the volume of gas within the NTS) to absorb some differences between supply and demand. National Grid NTS will seek to utilise linepack as a means of avoiding the deployment of other balancing measures. In this sense use of linepack is not a balancing measure as it does not directly impact gas flows onto or off the system.

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.

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.

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 a period of 24 hours after 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.

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.

4. Eligible Balancing Actions – assessment of bids and offers

Financial Services Regulations

The Financial Services and Markets Act (FSMA) 2000 and other relevant (national and European) financial services regulations, provide the legislative framework for those participants that operate on commodity-traded markets including the OCM and OTC gas markets. National Grid NTS will ensure that it undertakes its residual system-balancing role in accordance with the FSMA and other relevant financial services regulations.

Residual system balancing

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 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.

Price versus volume

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.

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.

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. Margins Notice and Gas Deficit Warning

Margins Notice

A Margins Notice will be issued if the day ahead (D-1) total NTS forecast demand is equal to or greater than the Expected Available Supply (a UNC defined term that represents the sum of National Grid NTS's non storage supply assumptions, and qualifying storage deliverability as defined in UNC TPD section V 5.9.7 (b))

The intent of the Margins Notice is to provide NTS Users with early notice of a potential supply/demand imbalance for the next gas day, encouraging them to take heed of the rolling Daily Margins Report and reassess their position relative to prevailing forecasts.

Where a Margins Notice is issued, it will remain in place until the end of the Gas Day to which it is applicable, unless superseded by a Gas Deficit Warning.

A Margins Notice and Safety Monitor Report will be published daily on the National Grid website, providing a rolling five day view of supply & demand data.

Gas Deficit Warning

The Gas Deficit Warning (GDW) is a warning given at the discretion of National Grid NTS based on expectations of the impact of a significant supply or demand event.

The intent of the GDW is to stimulate a market response to address an NTS physical imbalance following the events leading to its issue.

A GDW will be issued by National Grid NTS via its ANS services.

Following the issue of a GDW, 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 likely 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 GDW has been issued 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. From the 1st October

2016 this will include Demand Side Response offers submitted via the OCM (Locational). 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.

6. Multi-Day Offers

Where it has been assessed as economic and efficient to do so, National Grid NTS might undertake an Eligible Balancing Action on or in relation to a specific Gas Day for which a GDW is in place 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

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.
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** making multi-day offers economic and efficient, for example, for each of the next seven Gas Days once a GDW has been issued. These probabilities 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

Following the issue of a GDW, and where multi-day offers are available on the OCM or OTC, National Grid NTS will endeavour to 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. National Grid NTS will also publish updated probabilities within an hour of being re-calculated.

Use of revised multi-day assessment price (MDAP)

National Grid NTS will assess an 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 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.

Market Information and reporting

National Grid NTS will make available to Users and the wider market the relevant information (where commercial confidentiality permits) 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 National Grid NTS website. Further, National Grid NTS will provide the market with the opportunity to discuss the commercial, operational and information aspects of any national requirement and resultant multi-day trades through the National Grid NTS Operational Forum and UNC Transmission Workgroup.

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.

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.

PART F: DAILY SYSTEM MANAGEMENT CONSIDERATIONS

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

- 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 NTS entry and exit constraints where flows are forecast to exceed assessed system capability.
- 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).

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 0500 hours on one day to 0459 hours on the following day
GDW	Gas Deficit Warning
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 3D (Part D) (e) of the Licence.
LOPs	Local Operating Procedures agreed between National Grid NTS and Delivery Facility Operators
NTS	National Transmission System
OCM	On-the-day Commodity Market - Trading System or contingency balancing arrangements
OTC	Over-the-counter market
Predicted Closing Linepack	The expected end-of-Gas Day linepack level
REMIT	REGULATION (EU) No 1227/2011 on wholesale energy market integrity and transparency
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