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The Entry Capacity Substitution Methodology Statement

**Effective from [6th April 2009] (in respect of
QSEC auctions)**

DRAFT FOR CONSULTATION

INCREMENTAL ENTRY CAPACITY RELEASE STATEMENT**Document Revision History**

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| 0.1 | 17 May 2007 | Draft for consultation |
| 0.2 | 4 July 2008 | Revised draft updated following Substitution Workshops. Issued as a discussion document. |
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ABOUT THIS DOCUMENT

This document describes the methodology that National Grid Gas plc (“National Grid”) in its role as holder of the Gas Transporter Licence in respect of the NTS (“the Licence”) will utilise when considering the substitution of NTS entry capacity from one Aggregate System Entry Point “ASEP” to another ASEP where demand for entry capacity exceeds existing allocated quantities. In particular, it defines:

- under what circumstances National Grid will consider such substitutions; and
- the process to be undertaken by National Grid to determine its proposals to substitute or revise baseline quantities.

This document is one of a suite of documents that describe the release of incremental capacity by National Grid and the methodologies behind them. The other documents are available on our website at:

<http://www.nationalgrid.com/uk/Gas/Charges/statements/>

This statement is effective from [6 April 2009].

This document has been published by National Grid in accordance with Special Condition C8D of the Licence. National Grid believes the content is consistent with its duties under the Gas Act and is consistent with the Standard Conditions, Standard Special Conditions and Special Conditions of the Licence.

It should be noted that this document does not provide the methodology by which, and from when, incremental entry capacity will be made available. This methodology can be found in the Incremental Entry Capacity Release Methodology Statement (IECR).

This statement of the Entry Capacity Substitution Methodology is effective from [6th April 2009] in respect of incremental obligated entry capacity, released as a result of valid bids made in the QSEC auctions. The timing of the release of any incremental obligated entry capacity made available as a result of entry capacity substitution will be in accordance with the IECR.

If you require further details about any of the information contained within this document or have comments on how this document might be improved please contact our NTS Gas Charging and Access Development team on **01926 656217** or at: box.transmissioncapacityandcharging@uk.ngrid.com” or at:

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GENERAL INTRODUCTION

Background

1. National Grid is the owner and the operator of the gas National Transmission System (NTS) in Great Britain.
2. The NTS plays an important role in facilitating the competitive gas market and helping to provide the UK with a secure gas supply. It is a network of pipelines, presently operated at pressures of up to 85 barg, which transports gas safely and efficiently from coastal terminals and storage facilities to exit points from the system. Exit points are predominantly connections to Distribution Networks (DNs), but also include storage sites, and direct connections to large industrial consumers and other systems, such as interconnectors to other countries.
3. These operations are carried out to meet the needs of the companies that supply gas to domestic, commercial and industrial consumers and to power stations. In 2006/07 1,042 TWh of gas was transported to these consumers.
4. This publication sets out the methodology that applies for the substitution of existing entry capacity at one or more NTS Entry Points to meet demand for incremental entry capacity at other entry points, (i.e. capacity to be made available above the prevailing level of obligated entry capacity, primarily beyond investment lead times (the unconstrained period) in response to signals received from Users through processes described in the Uniform Network Code), thereby reducing the need for investment to meet that incremental demand for entry capacity. The methodology is applicable in respect of capacity released in the long-term, i.e. in the QSEC auctions.
5. The methodology for moving entry capacity between ASEPs in the short-term can be found in the “Entry Capacity Transfer and Trade Methodology Statement”. Related processes have been introduced to the UNC through implementation of UNC modification proposal 187A¹.
6. Details of National Grid and its activities can be found on its internet site at www.nationalgrid.com. An electronic version of this publication, along with the other related statements can be found on the following web page: “<http://www.nationalgrid.com/uk/Gas/Charges/statements/>”.

Capacity Terminology

7. This document contains terminology relating to entry capacity which is used in the Licence for the purposes of distinguishing between National Grid’s capacity obligations and revenue treatments. It should be noted that although this terminology exists, it does not change the capacity products that Shippers procure through established UNC processes e.g. Firm NTS Entry Capacity and Interruptible NTS Entry Capacity.
8. The terminology and relationships relating to Firm NTS Entry Capacity are provided below to assist the reader in interpreting this statement.

¹ UNC modification proposal 187A “Alterations to the RMSEC Auction to Accommodate Transfer and Trade of Capacity Between ASEPs” implemented with effect from 01/06/2008.

14. Specific obligations in respect of the substitution of entry capacity and applicable to this statement are set out in paragraph 10 of Special Condition C8D of the Licence and are:
- To prepare and submit for approval by the Authority a statement setting out the entry capacity substitution methodology which National Grid shall apply for entry capacity substitution.
 - To use reasonable endeavours to substitute entry capacity in accordance with the Entry Capacity Substitution Methodology Statement.
 - To use reasonable endeavours to ensure that the entry capacity substitution methodology facilitates the achievement of the entry capacity substitution objectives which are to:
 - ensure that entry capacity substitution is effected in a manner which minimises the costs associated with funded incremental obligated entry capacity²;
 - ensure that entry capacity substitution is effected in a manner which is compatible with the physical capability of the NTS;
 - avoid material increases in the costs (including entry capacity constraint management costs) that are reasonably expected to be incurred by National Grid as a result of substituting entry capacity; and
 - so far as is consistent with the above three points, to facilitate effective competition between relevant shippers and suppliers.
15. Special Condition C8A of the Licence defines entry capacity substitution as “the process by which unsold non-incremental obligated entry capacity is moved from one or more NTS entry points to meet the demand for incremental obligated entry capacity at another NTS entry point”.
16. This document has been produced in compliance with the obligation in paragraph 10(a) of Special Condition C8D and sets out the methodology that National Grid applies for the substitution of unsold non-incremental obligated entry capacity to meet demand for incremental obligated entry capacity at different ASEPs in order to minimise the need for funded incremental obligated entry capacity. The methodology encompasses this obligation and National Grid’s wider obligations to develop and maintain an efficient and economic system.

² Q1 - National Grid has interpreted the requirement to “minimise” the costs associated with funded incremental obligated entry capacity in this objective as meaning that all available capacity should be substituted to meet the incremental signal, without placing any restrictions on the substitution process.

Hence National Grid has developed the substitution methodology with no restrictions on the quantities available to be substituted. This could lead to significant quantities of capacity being substituted in year 1. It may be argued that this is inefficient as “more economic” substitution opportunities may arise in subsequent years. Conversely, later incremental signals may not occur and substitution opportunities would have been lost – and unnecessary investment made.

Notwithstanding the subsequent questions raised in this document, National Grid would welcome views on whether its interpretation is appropriate.

CHAPTER 1: PRINCIPLES

Purpose of the Methodology Statement

17. This methodology is intended to promote the economic and efficient development of the NTS. For the purposes of this methodology this objective is achieved by seeking to minimise the amount of investment that is required to satisfy incremental demand for entry capacity. Specifically, the methodology describes how unsold capacity could be identified as suitable for substitution from locations where no longer term demand for capacity has been seen to other locations where incremental entry capacity has been demanded through long term auctions.
18. This Entry Capacity Substitution Methodology Statement has been produced to meet the requirements of Special Condition C8D of the Licence in respect of the preparation of a statement setting out the methodology by which National Grid will determine its proposals for the substitution of non-incremental obligated entry capacity. National Grid believes the content is consistent with its duties under the Gas Act and is consistent with the Standard Conditions, Standard Special Conditions and Special Conditions of the Licence. In making incremental obligated entry capacity available at the recipient ASEP through entry capacity substitution, in a quantity determined in accordance with this methodology the Licence stipulates that the obligation to provide non-incremental obligated entry capacity at the donor ASEP is reduced by that quantity and such substituted capacity will not be available for sale in future auctions.
19. Consistent with the Licence and Uniform Network Code, NTS Entry Capacity is a firm commercial right that may be offered through daily, monthly or quarterly auctions: it does not reflect a commitment or obligation upon National Grid to undertake any investment on its network, including, but not limited to the provision of a physical connection to the NTS.

CHAPTER 2: METHODOLOGY

Introduction

20. This section explains the step by step approach that National Grid will undertake in order to assess the ability of the NTS to accommodate requests for incremental entry capacity at individual ASEPs through the substitution of NTS Entry Capacity across ASEPs so as to minimise the need for investment in the NTS.
21. Before application of the methodology the following conditions are required to be satisfied;
 - a. Demand for incremental capacity has satisfied the tests for release of incremental obligated entry capacity as set out in the IECR^{3,4}.
 - b. Capacity that has previously been substituted will be available for substitution where future quantities of that capacity are unsold.
 - c. Any incremental obligated entry capacity released as a result of QSEC auctions held prior to 2007 will not be available for substitution whether or not it has been sold for the period being assessed.
 - d. Any funded incremental obligated entry capacity released as a result of QSEC auctions held from 2007 onwards will only be available for substitution after a period of five years has elapsed from the initial release date (when it is classed as non-incremental obligated entry capacity for the purposes of capacity release obligations). Where incremental obligated entry capacity release is profiled, this will apply to each tranche of capacity. No reserve amount is held back for shorter term auctions for this type of capacity.
 - e. Capacity sold in previous QSEC auctions will be assumed to have been allocated as baseline obligated entry capacity first, followed by incremental entry capacity (in accordance with the Licence requirements for determining revenues from auctions). This means that capacity available for substitution at ASEPs where incremental capacity signals have previously been seen is likely to be limited (for at least the first five years from the initial release date).

³ Q2 - National Grid has taken the view that all incremental obligated entry capacity released must satisfy the NPV test detailed in the IECR. Substitution will only be considered if the test has been passed. However, National Grid would welcome views on whether a less stringent test should apply for the release of capacity that would, after analysis, be satisfied through substitution. It should be recognised that whilst a different test could increase the quantity of incremental obligated entry capacity released it would add much complexity to Shipper bidding strategies, as National Grid would be unable to identify substitution opportunities in advance of the QSEC auction, and to National Grid's assessment of substitution opportunities (e.g. need to identify a merit order for incremental requests where available capacity is limited; consideration of part investment, part substitution scenarios etc.).

⁴ Q3 - The substitution obligation is to minimise funded incremental obligated entry capacity, which is released subject to a 42 month default lead-time. Hence substitution will only be considered subject to a minimum 42 month lead-time (as may be adjusted according to the IECR). Do respondents agree that it is appropriate to consider substitution opportunities consistent with the timing for the release of funded incremental obligated entry capacity? It should be noted that any move away from the standard mechanism to release funded incremental obligated entry capacity will produce similar issues to those outlined in Q2, particularly in terms of increased complexity.

- f. Capacity that is not offered for release in the Quarterly System Entry Capacity (QSEC) auctions, i.e. capacity that is held-back for MSEC auctions, will not be available for substitution between entry points⁵. Currently this is 10% of baseline obligated entry capacity at each ASEP.
22. Following each QSEC auction demand for incremental obligated entry capacity will be identified. If incremental obligated entry capacity is not released then no further action need be taken.
23. If, in accordance with the IECR, National Grid considers that it is appropriate to release incremental obligated entry capacity then this methodology shall apply.
24. In respect of any QSEC auction, capacity will only be considered available for substitution after all qualifying bids for existing capacity have been satisfied, i.e. capacity will be allocated at the ASEP where bids are placed before being substituted to another ASEP.
25. Capacity will only be available to be substituted from an ASEP in the quantity in excess of the maximum aggregate allocation for any quarter from and after the quarter for which incremental capacity has been identified for release⁶.

⁵ Q4 - This condition limits the capacity available for substitution to 90% of the initial baseline quantity (10% being held back for MSEC auctions). It is not envisaged that this absolute quantity (i.e. GWh/day) will be reduced (within the current price control) to reflect capacity substituted from an ASEP. National Grid would welcome views on whether it is appropriate for any restriction to be placed on the availability of capacity for substitution or whether the level not available should be increased (or decreased). If an increase is suggested then views on what this level should be and whether it would be justified in relation to the licence obligations would be appreciated. For example, National Grid has identified the following options for decreasing the amount of capacity available for substitution:

- Increasing the percent of baseline with-held from QSEC auctions (requires a Licence change);
- Setting a fixed percent of baseline that, although available for release in QSEC auctions, will not, even if unsold, be made available for substitutions;
- Setting a fixed quantity (GWh/day) of capacity that will not be available for substitution from each ASEP;
- Setting a fixed quantity (GWh/day / percentage) of capacity that will not be available for substitution from all ASEPs in aggregate;
- Setting a maximum quantity (GWh/d or percentage) that can be substituted away at any ASEP.

In answering this question, National Grid would like respondents to express their views on:

- a. Whether these approaches would be more efficient than maximising substitution from year 1?
- b. What are the advantages and disadvantages of these actions?
- c. Should such limits only apply for a limited duration, e.g. for years 1 [and 2], but be removed after experience of the first year of substitution? And if so how do respondents see substitution being phased in?

⁶ Q5 – This paragraph highlights the “single quarter” issue, whereby Shippers can “protect” capacity at an ASEP by booking capacity for a single quarter in a future year. National Grid does not propose any actions, at this time, to prevent Shippers making such capacity bookings. Do respondents consider this to be appropriate or should action be taken to limit single quarter bookings in the future? if so what action is considered appropriate?

Application of Zones

26. Where ASEPs utilise sections of common NTS infrastructure and consequently are deemed to be 'interactive' in terms of utilising network capability National Grid will group the ASEPs into zones.
27. The zones and the ASEPs that are included in each are provided as Appendix 1 to this methodology statement. Prior to each QSEC auction National Grid will publish any revisions to the zones⁷.

Recipient ASEPs

28. Where the QSEC auction results in National Grid proposing the release of incremental obligated entry capacity at more than one ASEP analysis of substitution opportunities will commence by considering the recipient ASEP with the lowest Licence Revenue Driver for the first tranche of incremental capacity (as defined in the Licence Special Condition C8D paragraph 2c)⁸.
29. The substitution analysis will be assessed in accordance with the physical capability of the recipient ASEP local infrastructure. For example, where physical limits exist on the maximum flows that may be achieved from a terminal, no substitution that could take flows above this physical maximum will be allowed.
30. All within zone substitutions shall be progressed before across zone assessments.

Donor ASEPs

31. Substitutions from individual donor ASEPs will commence by reducing the capacity at the most favourable ASEP that has spare capacity. The most favourable ASEP will be the nearest ASEP determined according to pipeline distance and is selected in preference to more distant ASEPs as this will create greatest interchangeability⁹.

⁷ Q6 - Considering that the substitution process is identical within and out-with zones, do respondents feel that the use of zones is beneficial? By dispensing with the within zone process the order in which donor ASEPs are identified may change slightly but may become less transparent.

⁸ Q7 – In order to create an order for assessment of multiple recipient ASEPs National Grid is proposing Licence Revenue Drivers (LRDs) as the assessment criteria. National Grid believes that the ASEP with the lowest LRD will facilitate more efficient substitution, i.e. less capacity needed from donor ASEPs. Alternative criteria could be used and National Grid would welcome alternative proposals. It should be noted that, in the absence of any constraints on capacity available for substitution, that if sufficient incremental obligated entry capacity is released, all available capacity, where beneficial, will be substituted regardless of the recipient ASEP order.

⁹ Q8 - Do respondent favour an approach that requires National Grid to follow a set methodology or should National Grid have some discretion to select more favourable donor ASEPs?

Substitution Analysis (see Diagram 1)¹⁰

32. Where an incremental signal has been received analysis is undertaken to determine what capacity exchange would be required to satisfy the incremental capacity request without the need for investment. Capacity substitution will be determined by assessing the flow patterns that can be accommodated by the NTS; i.e. without increasing the risk of capacity constraint management actions being required.
33. Capacity substitution will firstly be considered within the relevant entry zone. If this cannot satisfy the increment at the recipient ASEP then substitutions out-with the relevant entry zone will be considered.
34. Substitution analysis will commence by increasing the flow (in the assessment scenario) at the recipient ASEP to the prevailing obligated entry capacity.
35. Flow will be reduced at the least interactive ASEP to maintain a supply / demand balance.
36. Substitution analysis will continue by increasing the flow (in the assessment scenario) at the recipient ASEP by the level of the incremental obligated entry capacity.
37. The obligated capacity will be reduced at the donor ASEP by the incremental quantity at the recipient ASEP. Where the available capacity at the donor ASEP is less than the incremental capacity then further donor ASEPs will be used. Where this impacts on flow rebalancing will be undertaken at the least interactive ASEPs.
38. The obligated capacity at donor ASEPs will progressively be reduced until either:
 - the incremental request is satisfied; or

¹⁰ Q9 - Following on from Q1, although the current draft methodology does not place any restriction on the quantity of capacity that can be substituted. National Grid would welcome views on alternative approaches and how these may better meet National Grid's licence obligations.

Alternatives that National Grid believe merit consideration include (respondents may propose further alternatives);

- an exchange rate cap. It should be recognised that this option would not prevent all capacity being substituted away from a donor ASEP even with a 1:1 exchange rate cap. In the event that an exchange rate cap is considered appropriate:
 - how should the level be determined? What should be the level of an exchange rate cap?
 - Should a cap be applied in aggregate across all donor ASEPs or for each recipient/donor ASEP combination?
 - Are there any scenarios where different caps should apply?;
- limiting substitution to within zone only. Although such a limit is likely to give more favourable exchange rates it could also severely limit the scope for substitutions, particularly in zones with few ASEPs (e.g. Theddlethorpe, West UK zones);
- reducing all potential [within zone] donor ASEPs together by equal amounts (% or mcmd) instead of exhausting donor ASEPs in sequence. It should be recognised that a sufficiently high level of signalled incremental capacity would still exhaust all potential donor ASEPs under this option. However, where all donor ASEPs are not exhausted the outcome would be sub-optimal substitutions, i.e. less favourable exchange rate overall. This option is also likely to be more complicated to undertake; an important issue considering the limited time that National Grid has to assess investment and substitution proposals.

These potential measures should be considered as a way of "managing" the use of substitutable capacity. This differs from, and is complementary to, the options in Q4, which limit the quantity of capacity available for substitution.

- the obligations at all potential donor ASEPs have been reduced to the level of sold capacity plus held-back for medium/short-term auctions, plus any other unsold incremental obligated entry capacity not available for substitution. In this case the process will move to the assessment of potential substitutions across zones.
39. After all within zone assessments have been completed, i.e. as defined by paragraph 38, any unsatisfied incremental requests will be considered with donor ASEPs from alternative zones. Donor ASEPs will be considered in order of pipeline distance from the recipient ASEP (nearest first).
40. The obligations (and hence flows) for all potential capacity substitutions shall be verified by network analysis. Where such analysis is deemed to result in a “failed” network, the flow at the donor ASEP (and hence the quantity of capacity substituted from the donor ASEP) shall be adjusted until the network does not fail or there is no more capacity available to substitute. In this event the residual reinforcement shall be identified.
41. Where residual investment¹¹ is identified and the associated cost of this investment does not, in National Grid’s sole estimation, adequately cover the costs of, or return on, such investment potential capacity substitutions will be adjusted. The most economic solution will be proposed taking into account minimum economic investment and substitution quantities.
42. The appropriate level and combinations of substitution and investment will be confirmed by network analysis. This will be achieved by updating the network model for the revised, post-substitution, obligated capacity levels and residual investment. The final step in the substitution analysis shall then be reversed, by 2mcmd, (i.e. by increasing the obligated capacity (where this impacts on flow rebalancing will be undertaken) at the final donor ASEP) and this shall be validated through network analysis.
- If the network fails, e.g. network pressures or plant operating conditions cannot be maintained then the proposed substitution is deemed to be appropriate.
 - If the network passes further 2 mcmd increments shall be added to the donor ASEP flow until the network fails and the cut-off point is identified.

Network Analysis for Capacity Substitution

43. Potential capacity substitutions shall be validated through network analysis. The objective shall be to avoid incremental change in risk. Hence National Grid will not propose capacity substitution where this results, under planning scenarios, in the capability of the NTS being reduced below that required.
44. The capacity substitution objective is to minimise investment that would otherwise be required to satisfy demand for incremental capacity. Substitution opportunities shall be assessed against criteria defined within the Transmission Planning Code which is the basis for National Grid’s investment decisions. This shall include existing commitments, including capacities, and pressures on the network. Substitutions shall not be accepted if this puts at risk National Grids ability to deliver its existing commitments. These commitments will be taken from regulatory and commercial agreements and statutory instruments and are additional to the conditions set out in the National Grid annual planning procedures.

¹¹ National Grid may consider alternatives to investment.

45. The supply and demand scenarios used for the analysis will be consistent with the Transmission Planning Code.
46. The analysis shall primarily be undertaken at the peak 1 in 20 demand level supplemented by analysis for different demand conditions derived from the average load duration curve and be undertaken for a number of gas years starting with the proposed gas year for release of the incremental obligated entry capacity

Analysis Output

47. On completion of the above analysis the following effects of the accepted capacity substitutions will be recorded and proposed to Ofgem:
 - the quantity of incremental obligated entry capacity proposed for release at any ASEP where National Grid has identified, consistent with the IECR, demand for incremental entry capacity; and the quantity of such incremental obligated entry capacity to be met by;
 - substitution of non-incremental obligated entry capacity; and
 - funded incremental obligated entry capacity, e.g. by investment;
 - the reduced level of obligated entry capacity available for release in future auctions at donor ASEPs.
48. The incremental obligated entry capacity proposal will be implemented subject to the Authority not vetoing (or directing to modify) the proposal in accordance with Special Condition C8D of the Licence. In the event that the proposal is vetoed or agreement is not reached on any modification National Grid will not allocate incremental obligated entry capacity and the adjustments proposed in the paragraph 47 will not be made.

New ASEPs

49. In accordance with UNC rules, where a new ASEP is created a stand-alone auction can be held for that new ASEP only. Analysis of the bids placed in these auctions may trigger the release of incremental entry capacity. Where this occurs substitution will be considered to meet the requirement for the incremental entry capacity before investment.
50. As a transitional rule, substitution will not be considered in respect of “new ASEP specific auctions” where these auctions occur after implementation of this methodology and before a regular QSEC auction where capacity can be obtained at all ASEPs¹².

¹² Q10 – Do respondents agree with this transitional rule?

Appendix 1. Entry Capacity Zones

The current ASEPs that constitute each Entry Zone are provided below. There are seven zones.

| Zone | ASEP |
|---------------------|---|
| Easington Zone | Easington terminals (inc Rough) Hornsea Garton / Aldborough Hatfield Moor |
| Theddlethorpe Zone | Theddlethorpe |
| South East Zone | Bacton terminals (inc. Continental Interconnector) Grain LNG |
| Northern Triangle | Barrow terminals Teesside terminals St Fergus terminals Glenmavis |
| North West Corridor | Fleetwood Partington Burton Point Hole House Farm Byley / Cheshire |
| West UK Zone | Milford Haven Dynevor Arms |
| South West UK Zone | Humbley Grove Avonmouth |

Diagram 1 – Process for Substitution Analysis

