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2.2	Submitted to Authority

The Entry Capacity Substitution Methodology Statement

Effective from 01 November 2011

nationalgrid

THE POWER OF ACTION

ENTRY CAPACITY SUBSTITUTION METHODOLOGY STATEMENT

Document Revision History

Version/ Revision Number	Date of Issue	Notes
0.1	17 May 2007	Draft for consultation
0.2	4 July 2008	Revised draft updated following Substitution Workshops. Issued as a discussion document.
0.3	15 May 2009	Informal consultation Major changes to reflect workshop output.
0.3C	15 May 2009	Drafted for Option Approach
0.4	24 July 2009	Further detail added for formal consultation.
0.5	7 September 2009	Revised following comments received to formal consultation. Scope for refund of retainer charges extended to allow capacity allocated at Y+5 and Y+6 to trigger refund. Retainer requests to be acknowledged. Individual User retainers granted to be notified to the relevant User. Full and partial refunds of retainer charges will now be made in the year they are triggered. Revisions to zones will now be notified before the retainer window. Minor amendments to aid clarity.
1.0	8 December 2009	V0.5 approved by the Authority.
1.1	6 August 2010	Annual Review – Consultation Draft
1.2	23 September 2010	Revision to appendix 1 following comments received to formal consultation. Submitted for Approval
2.0	21 October 2010	Authority Approval
2.1	04 August 2011	Annual review – Consultation Draft
2.2	14 September 2011	Correction to footnote to appendix 1 changed from the QSEC invitation letter to the Retainer invitation letter. Submitted for Approval

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 NTS Aggregate System Entry Point “ASEP” to another ASEP where demand for entry capacity exceeds existing obligated 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 capacity and 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 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 (“ECS”) is effective from 1st November 2011¹ in respect of incremental obligated entry capacity, released as a result of valid bids made in the auctions for Long Term System Entry capacity (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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¹ Or the date of approval by the Authority if later than this date.

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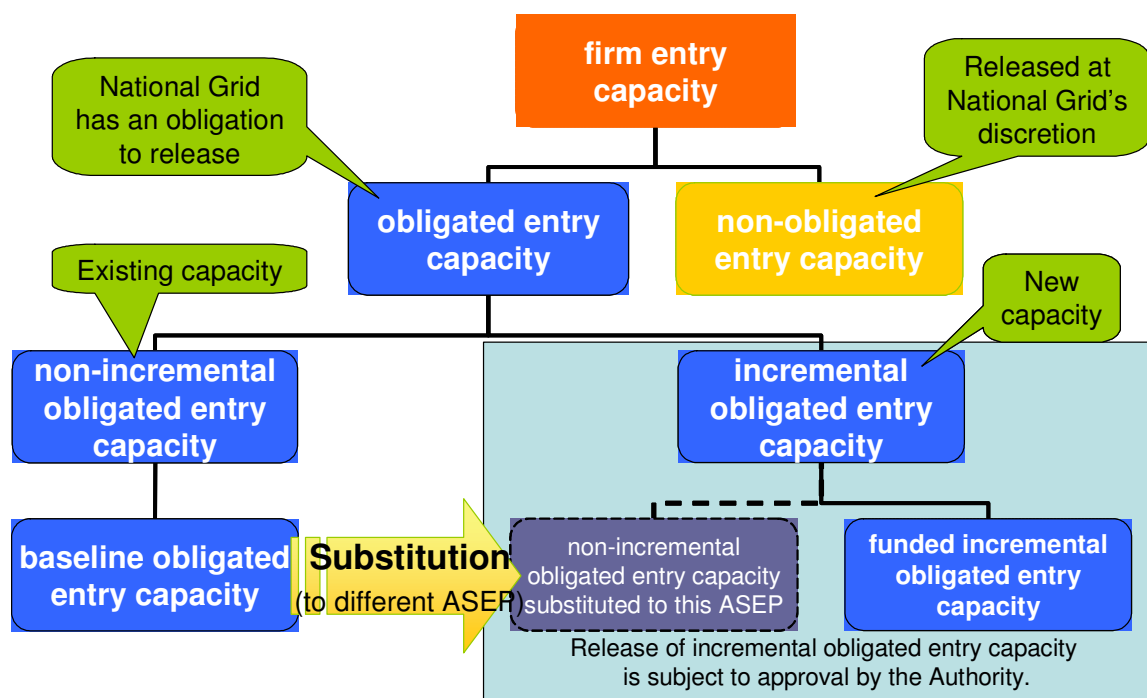
GENERAL INTRODUCTION

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 94 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 power stations, 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 2009/10 1,020 TWh of gas was transported to these consumers.
4. This publication sets out the methodology that applies for the substitution of existing entry capacity (see paragraph 10) 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 Quarterly System Entry Capacity ("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 Uniform Network Code ("UNC").
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 Users 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.



9. The actual definitions of these terms are contained within the Licence. Where any conflict arises between the Licence and this statement the Licence shall prevail.
10. Entry capacity substitution is therefore, the process of assigning "non-incremental obligated entry capacity" from one or more ASEP(s) to meet the requirement for "incremental obligated entry capacity" elsewhere. The substituted entry capacity is assigned to the ASEP where additional capacity is demanded, in preference to creating additional capacity ("funded incremental obligated entry capacity") which may require investment in new infrastructure. The "non-incremental obligated entry capacity" at an ASEP is made up of baseline obligated entry capacity for the ASEP plus (or minus) any entry capacity that has been substituted to (or from) the ASEP. In addition, funded incremental obligated entry capacity that has been released in long term auctions from 2007 will be treated as non-incremental obligated entry capacity five years after this capacity is first released.

National Grid's Licence Obligations

11. New and existing Users of the NTS are able to request to purchase entry capacity products defined in the UNC for any ASEP. Such capacity requests will be considered against the provisions of National Grid's statutory licence obligations and in accordance with its published methodologies.
12. Overriding obligations applicable to this statement are set out in the Gas Act and the Licence.
13. Specific obligations in respect of the release of incremental entry capacity and relevant to this statement are set out in Special Condition C15 of the Licence. Under this condition, National Grid must prepare the Incremental Entry Capacity Release Methodology Statement (the "IECR") setting out the methodology by which National Grid will determine whether to make incremental entry capacity available for sale. The current IECR can be found on National Grid's website.

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 capacity;
 - 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.

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 capacity could be identified as suitable for substitution from locations where no long term demand (as defined by the absence of capacity allocations and / or retainers²) for capacity has been seen to other locations where incremental entry capacity has been demanded through long term auctions. Any capacity that is not allocated or subject to a retainer will be deemed available for substitution.
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 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 a quantity also determined in accordance with this methodology and such substituted capacity will not be available for sale in future auctions.
19. Consistent with the Licence and UNC, 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.

² Retainers provide Users with an alternative to buying capacity in order to prevent capacity from being substituted away from an ASEP and are defined in detail below, particularly in the section "Capacity Retainers".

CHAPTER 2: METHODOLOGY

Introduction

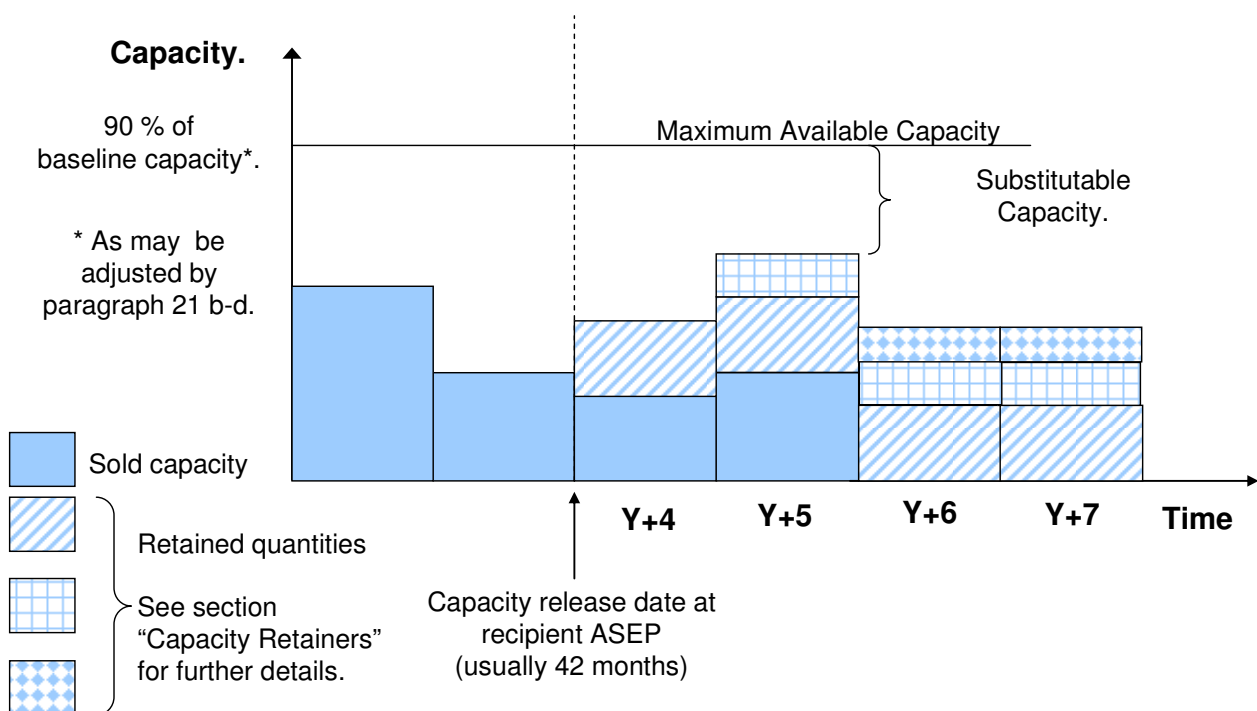
20. This section explains the step by step approach that National Grid will undertake in order to assess the ability of the NTS to accommodate requests for incremental entry capacity at individual ASEPs through the substitution of NTS Entry Capacity across ASEPs so as to minimise the need for investment in the NTS.
21. Before application of the entry capacity substitution methodology demand for incremental entry capacity must satisfy the tests for release of incremental obligated entry capacity as set out in the IECR.
22. In applying the entry capacity substitution methodology the following rules will be applied to determine the quantity of capacity that will be made available for substitution, the "Substitutable Capacity":
 - a. Capacity that is not offered for release in the QSEC auctions, i.e. capacity that is held-back for MSEC auctions will not be available for substitution between entry points. Currently this is 10% of baseline obligated entry capacity at each ASEP. Hence the Substitutable Capacity at an ASEP will be equal to 90% baseline obligated entry capacity subject to the following adjustments.
 - b. Capacity that has previously been substituted to an ASEP (i.e. to a recipient ASEP) will be available for substitution where future quantities of that capacity are unsold at the recipient ASEP.
 - c. Capacity that has previously been substituted from an ASEP (i.e. from a donor ASEP) will not be available for substitution from the donor ASEP.
 - 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. 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 as such capacity does not become non-incremental obligated entry capacity for the purposes of capacity release obligations³.
 - f. Capacity allocated in previous QSEC auctions will not be available for substitution. Capacity allocated 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

³ The treatment of incremental obligated entry capacity released as a result of QSEC auctions held prior to 2007 may be changed at a future price control such that this capacity may, in future, be available for substitution.

been seen is likely to be limited (for at least the first five years from the initial release date).

- g. Sub-paragraph a) limits Substitutable Capacity to 90% of the initial baseline quantity (10% being held back for MSEC auctions) plus or minus any quantities identified in sub-paragraphs b), c) and d) and minus any capacity sold. This methodology statement incorporates a mechanism that allows Users to take out a “retainer” that would reduce the quantity of Substitutable Capacity by placing an additional restriction on the availability of capacity for substitution. Further details are given in the Capacity Retainers section below.
- h. For each ASEP the quantity of Substitutable Capacity will be the lowest value, determined in accordance with this paragraph, for any quarter following the default lead time⁴ for the release of incremental capacity. Irrespective of the date of release of incremental entry capacity (which may be later than the default period) capacity will not be substituted from an ASEP in quantities greater than the Substitutable Capacity. This is illustrated in diagram 1 below.

Diagram 1: Substitutable Capacity at Donor ASEP



23. 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 by National Grid.
24. If, in accordance with the IECR, National Grid considers that it is appropriate to release incremental obligated entry capacity then this methodology shall apply.

⁴ In the event that incremental capacity is released in advance of the default lead time, it will be necessary, to determine the Substitutable Capacity, to consider relevant earlier quarters.

25. 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.
26. Capacity will only be available to be substituted from an ASEP in the quantity determined in accordance with paragraph 22.

Capacity Retainers

27. Users will be able to exclude capacity at potential donor ASEPs from being treated as Substitutable Capacity without having to buy and be allocated the capacity. To do this they will be able to take out a “retainer”.
28. For the purpose of determining whether a refund of Retention Charges is due each retainer is “tagged” to a specific year. The default year is Y+4⁵, i.e. for a retainer taken out in January 2012 the tagged year is Oct 2015 to Sept 2016. Alternatively a User may tag their retainer to year Y+5 or Y+6. For a refund to be made capacity must be allocated for the tagged year in accordance with rules defined in the section “Capacity Retention Charge Refunds”.
29. If more than one retainer is taken out at an ASEP, within the same retainer window, then they shall be aggregated from the tagged year for the purposes of determining the Substitutable Capacity, i.e. retainers tagged to year Y+5 shall not be aggregated to Y+4 and retainers tagged to Y+6 shall not be aggregated to Y+4 and Y+5. This is illustrated in Diagram 1.
30. The retainer will be valid for one year, covering all QSEC auctions (including ad-hoc auctions) held in this period. National Grid will exclude the relevant quantity from the substitution process, but the retainer will not:
 - create any rights to the User to be allocated or to use the capacity. The User must bid for, and be allocated, capacity in accordance with UNC to obtain any rights over capacity;
 - prevent Users (including the User taking out the retainer) from buying that capacity at the ASEP in question in the period covered by the retainer.
31. For the avoidance of doubt, a retainer will prevent capacity from being substituted away from an ASEP for any quarter, for which capacity may be released, in any QSEC auction held in the year for which the retainer is valid.
32. Retainers will only be available to Users, i.e. signatories to Network Code.

Capacity Retainer Windows

33. Prior to the annual QSEC auction (but not any ad-hoc auction for a new ASEP) National Grid will open a retainer window allowing Users to identify the quantity of capacity that they wish to exclude from substitution for specific ASEPs.
34. The retainer window will be open for retainer requests to be submitted on two discrete business days from 8am to 5pm. There will be one business day between the two retainer bid days.

⁵ References in this document to years “Y+4” etc relate to capacity years, i.e. year Y is the year of the auction or retainer window. E.g. for a January retainer window and March QSEC in year Y a default retainer would apply to October 2015 to September 2016 (Y+4).

35. The retainer window shall open in the month two months before the month in which the annual QSEC auction is to be held.
36. No less than 28 days before the first day of the retainer window National Grid shall issue an invitation to Users to partake in the retainer window. This invitation shall specify, for each ASEP, the maximum available retainer quantity, being the maximum quantity for which retainers may be granted for each of years Y+4, Y+5 and Y+6, i.e. the quantity determined under paragraph 22.
37. Retainers shall be requested via fax using a proforma provided by National Grid.
38. Retainer requests shall be considered as received. Requests cannot be removed or amended except where National Grid identifies a blatant error and such removal or amendment is agreed with the User before 5pm on the day the request is submitted. National Grid shall use reasonable endeavours to provide confirmation of receipt of a retainer request by no later than one hour after the relevant retainer window closing and, where practicable, by no later than one hour before the relevant retainer window closes.
39. On the first day of the retainer window Users shall be able to take out retainers which, in aggregate, when added to the sold capacity shall not exceed the Maximum Available Capacity (see diagram 1). Where Users request retainers for a greater quantity such requests shall be reduced (in the case of a single User request) or pro-rated (in the case of multiple User requests) in proportion to the quantities requested.
40. Retainer requests made on the second day of the retainer window shall be allocated up to a maximum quantity as determined in paragraph 39 minus the retainers granted on the first day.
41. Where reduction or pro-rating of retainer requests is required this will be carried out in the sequence Y+4 retainers, then Y+5 and finally Y+6.
42. Retainers shall be rejected where they have no effect on the Substitutable Capacity; e.g. where Y+4 retainers plus previously sold capacity are equal to the Maximum Available Capacity the Substitutable Capacity will be zero. Hence any Y+5 and Y+6 retainers will have no effect and shall be rejected.

Provision of Retained Capacity Information

43. By 8pm on the day of each retainer window National Grid shall publish on its website, for each ASEP where one or more retainers has been granted, the aggregate quantity covered by those retainers and the adjusted maximum retainer quantity.
44. By 8pm on the day of the each retainer window National Grid shall notify individual Shippers granted retainers of the relevant ASEPs and quantities.

Capacity Retention Charges

45. The retainer will be subject to a one-off charge calculated in accordance with the Gas Transmission Transportation Charging Statement and will be payable via ad-hoc invoice raised within 2 months of the QSEC auction allocations being confirmed; i.e. in July for a March auction. If a User wishes to protect capacity for more than one

year then a further retainer must be obtained each year and a charge will be payable each year for which a further retainer is taken out.

Capacity Retention Charge Refunds

46. The retainer is intended to reserve capacity at an ASEP for Users to obtain at a later date. In the event that the capacity is not obtained later the retention of capacity may have resulted in unnecessary investment as a result of lost substitution opportunities. Conversely, if capacity is booked at the ASEP where the retainer was taken out, the retainer will have represented genuine future requirements so it is appropriate that the retention charge is refunded in this case.
47. As the retainer reserves capacity at an ASEP for any User to obtain; the retainer does not create any rights over the capacity; the User granted the retainer shall receive a refund (other than in the circumstances defined in paragraph 51) regardless of which User is subsequently allocated the retained capacity.
48. Except as defined in paragraph 50 below, for the purposes of triggering refunds the retainer will apply for a default period of 12 months commencing 42 months after the QSEC auction that follows the retainer window in which the retainer is granted. 42 months is the default lead-time for the release of incremental entry capacity and hence is the earliest time (subject to variations from the default described in the IECR) from which substitution can take place. Hence for a refund to apply in respect of a retainer taken out in January 2012 capacity must, subject to paragraphs 50 and 51, be allocated at the relevant ASEP for at least one month or quarter in the period Oct 2015 to Sept 2016.
49. Where any capacity covered by a retainer with the default Y+4 tag, is allocated to any User in a QSEC or AMSEC auction a refund of the retention fee will be made. Hence for a retainer taken out in January 2012 a refund can only be triggered by an allocation at the relevant ASEP made pursuant to QSEC in 2012⁶, 2013 and 2014, and AMSEC in 2015 and 2016.
50. Where, in accordance with paragraph 28, a retainer is tagged to Y+5 or Y+6, for the purposes of triggering refunds the retainer will apply for a period of 12 months commencing 54 or 66 months (see diagram 1), respectively, after the QSEC auction that follows the retainer window in which the retainer is granted. Hence for a refund to apply in respect of a Y+6 “tagged” retainer taken out in January 2012 capacity must be allocated at the relevant ASEP for at least one quarter in year Y+6 i.e. in the period Oct 2017 to Sept 2018.
51. Where any capacity covered by a retainer, as defined in paragraph 50 above, is allocated, a refund will only be made if the retained capacity is allocated:
 - (a). In the year the retainer is taken out; to any other Shipper;
 - (b). In the year following that defined in (a); to the relevant Shipper; or
 - (c). In the case of a retainer with a Y+6 tag, in the year following that defined in (b); to the relevant Shipper.

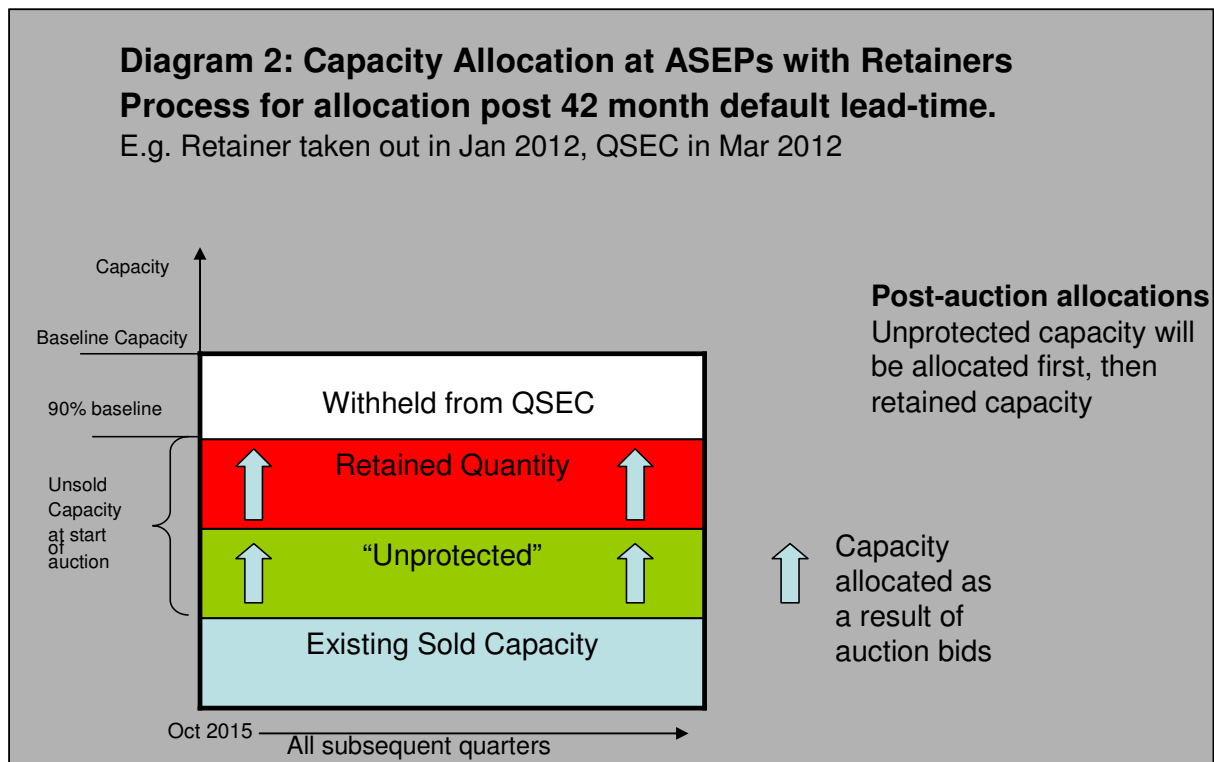
Hence for a Y+6 tagged retainer taken out in January 2012 a refund can only be triggered by an allocation at the relevant ASEP made pursuant to QSEC in 2012 (to any Shipper), or 2013 and 2014 (to the relevant Shipper).

⁶ A refund following the QSEC in the year in which a retainer is taken out will be effected by not raising an invoice for the retainer, or by issuing simultaneous invoice and refund.

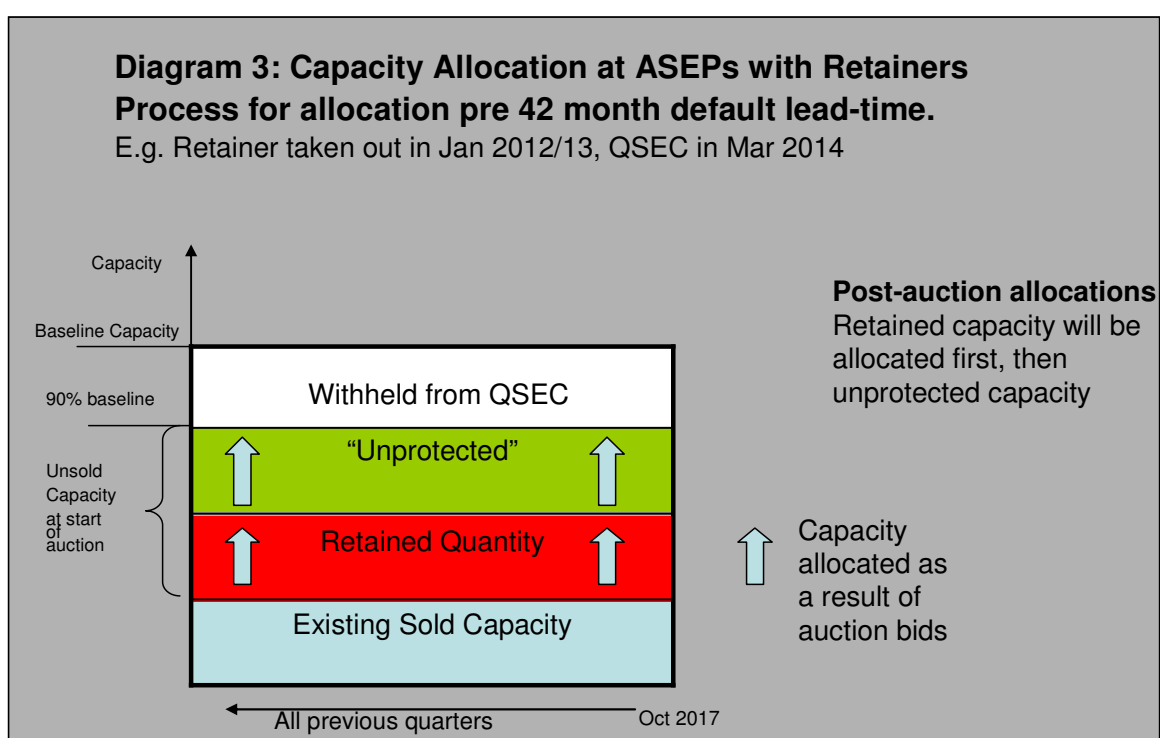
52. The refund will be calculated annually after the March QSEC allocations (taking account, as appropriate, of February AMSEC allocations) from the difference in the peak allocated quantity for any month or quarter, in the relevant year (see paragraphs 48 and 50) minus the peak allocated quantity for any month or quarter, in the same year, before the retainer is taken out and then comparing this quantity to the retained quantity, if any. Where a full or partial refund is triggered this shall be paid in July following the relevant auction.
53. If only part of the capacity covered by the retainer is allocated the refund will be reduced in proportion to the amount allocated.
54. Where more than one User has been granted a retainer at an ASEP for the same period and some of the retained capacity is allocated, each User's refund shall be based on the proportion of their retained capacity at the relevant ASEP that has been allocated.

Capacity Allocations

55. To maximise the potential that capacity covered by a retainer is kept at an ASEP for allocation in future auctions, in the QSEC auction in the year in which the retainer is granted any unsold capacity that is allocated in respect of any quarter following the default lead-time will be allocated in the sequence; unprotected capacity first, followed by retained capacity. This is illustrated in diagram 2, below.



56. Except where paragraph 55 applies, in all QSEC and AMSEC auctions capacity will be allocated so as to maximise the potential for the refund of retention fees. This recognises that the capacity protected by the retainer was genuinely required even though it was not sold at the time the retainer was requested. In these auctions any unsold capacity that is allocated in respect of any quarter before the default lead-time will be allocated in the sequence; retained capacity first, followed by unprotected capacity. In respect of AMSEC auctions, the 10% withheld from QSEC shall be treated as unprotected. This is illustrated in diagram 3, below.
57. Where, at any ASEP, retained capacity is allocated, any allocations made in respect of a User with a retainer at that ASEP will be made against the capacity retained by the same User as defined by Shipper short codes on Gemini). Hence retainer charge refunds will be targeted towards Users allocated capacity before those not allocated capacity.



Application of Zones

58. Where ASEPs utilise common sections of NTS infrastructure and consequently are deemed to be 'interactive' in terms of utilising network capability National Grid will group the ASEPs into zones. Zones shall be used for the identification of potential donor ASEPs due to their interactivity with the recipient ASEP. For all other aspects of this methodology the use of zones is not a mandatory requirement.
59. The zones and the ASEPs that are included in each are provided as Appendix 1 to this methodology statement. Prior to each retainer window National Grid will publish any revisions to the zones.

Recipient ASEP Order

60. 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 (“LRD”) for the first tranche of incremental capacity to be released (as defined in the Licence Special Condition C8D paragraph 2c).

61. 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 an entry point, no substitution that could take flows above this physical maximum will be allowed. This would also include the provision of a connecting pipeline from a new system entry point to the existing NTS.

Donor ASEP Order

62. All within zone donor ASEPs will be considered before out of zone donor ASEPs.
63. Substitutions from individual donor ASEPs will commence by reducing the capacity at the most favourable ASEP that has Substitutable Capacity and is in the same zone as the recipient ASEP. The most favourable ASEP will be the ASEP providing the lowest exchange rate and is selected in preference to other ASEPs as this will result in the most efficient outcome, i.e. the least aggregate loss of capacity. In the event of two or more donor ASEPs providing equal exchange rates then the donor ASEP will be selected on the basis of nearest ASEP determined according to pipeline distance from the recipient ASEP.
64. Where there is insufficient capacity at the first donor ASEP to fully satisfy the incremental capacity required at the recipient ASEP the quantity of capacity that can be substituted will be substituted and further within zone ASEPs will be considered in order of most favourable to least favourable exchange rate.
65. Where there is insufficient capacity at all within zone ASEPs to fully satisfy the incremental capacity required at the recipient ASEP potential out of zone donor ASEPs will be considered individually on the basis of the most favourable ASEP that has spare capacity. The most favourable ASEP, for out of zone ASEPs, will be the nearest ASEP determined according to pipeline distance.
66. The exchange rate for each donor ASEP, recipient ASEP pairing shall be determined. Where this exceeds 3:1 the substitution shall not be permitted. Substitution at 3:1 and below will be made. This limit may be revised during the annual review of the methodology.

Network Analysis for Capacity Substitution

67. Potential capacity substitutions shall be validated through network analysis. The objective shall be to avoid incremental increase 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.
68. 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 Grid’s 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.

69. The supply and demand scenarios used for the analysis will be consistent with the Transmission Planning Code.
70. 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.

Substitution Analysis (see Appendix 2)

71. 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.
72. Capacity substitution will firstly be considered within the relevant entry zone. If this cannot satisfy the increment at the recipient ASEP then substitutions outside the relevant entry zone will be considered.
73. Substitution analysis will commence by increasing the flow (in the assessment scenario) at the recipient ASEP to the prevailing obligated entry capacity.
74. Flow will be reduced at the least interactive ASEP(s) to the recipient ASEP to maintain a supply / demand balance.
75. 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.
76. 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. These will be selected according to paragraphs 62-65. Where this impacts on flow, rebalancing will be undertaken at the least interactive ASEP(s) to the recipient ASEP.
77. The obligated capacity at donor ASEPs will progressively be reduced until either:
 - the incremental request is satisfied; or
 - all Substitutable Capacity (see paragraph 22) has been substituted; or
 - further capacity cannot be substituted without exceeding an exchange rate of 3:1.In this case the process will move to the assessment of potential substitutions across zones.
78. After all within zone assessments have been completed, i.e. as defined by the above paragraph, 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).
79. At each stage of the process, e.g. when moving to an additional donor ASEP the individual donor ASEP to recipient ASEP exchange rate will be determined.

80. All substitutions shall be subject to a limit on the maximum permitted exchange rate of 3:1. This means that where analysis shows that more than 3 units of capacity are required from a donor ASEP to create 1 unit at the recipient ASEP then the substitution shall be rejected above this limit. However, to the extent that some capacity can be substituted at, or lower than, 3:1, substitution will be permitted for that quantity of capacity.
81. Notwithstanding paragraphs 80 above, and 82 below, when a donor ASEP exchange rate greater than 3:1 is encountered the process will cease with the previous donor ASEP; i.e. the last donor ASEP with an exchange rate no greater than 3:1.
82. To validate results, National Grid may, at its sole discretion, consider further donor ASEPs. As ASEPs are considered in order of interactivity with the recipient ASEP it is unlikely that any subsequent donor ASEPs will satisfy the exchange rate cap.
83. 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(s) (and hence the quantity of capacity substituted from the donor ASEP(s)) shall be adjusted until the network does not fail or there is no more capacity available to substitute. In this event the residual investment shall be identified.

Partial Substitution

84. Where residual investment⁷ 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.
85. The appropriate level and combinations of substitution and investment (considering all potential incremental capacity releases) 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 at the final donor ASEP and where this impacts on flow, rebalancing will be undertaken) 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.

Analysis Output

86. 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;

⁷ National Grid may consider alternatives to investment.

- 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.
87. 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 paragraph 86 will not be made.

New ASEPs

88. 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.
89. For ad-hoc auctions for new ASEPs the Substitutable Capacity will be determined in the same manner as for existing ASEPs. Retainers taken out prior to the regular QSEC auction will continue to apply, but Users will not be able to take out new retainers prior to the ad-hoc auction.

Appendix 1. Entry Capacity Zones

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

Entry Zone	ASEP	Baseline GWh/day	Substitutable Capacity * GWh/day as at 01/10/15
Easington Zone	Easington terminals (inc Rough)	1062	0
	Hornsea	175	9.81
	Garton / Aldborough	0	0
	Hatfield Moor	25.3	0.77
	Burton Agnes (Caythorpe)	0	0
Theddlethorpe Zone	Theddlethorpe	610.7	531.34
	Blyborough (Welton)	0	0
South East Zone	Bacton terminals (inc. Interconnector)	1783.4	453.18
	Grain LNG	464.2	0
	Winkfield	0	0
	Tatsfield	0	0
	Albury	0	0
	Palmers Wood	0	0
Northern Triangle	Barrow terminals	309.1	0
	Teesside terminals	476	168.17
	St Fergus terminals	1670.7	1017.34
	Glenmavis	99	89.1
	Canonbie	0	0
	Moffat	0	0
North West Corridor	Fleetwood	0	0
	Partington	215	193.5
	Burton Point	73.5	66.15
	Hole House Farm	131.6	0
	Cheshire	285.9	0
West UK Zone	Milford Haven	0	0
	Dynevor Arms	49	44.1
South West UK Zone	Barton Stacey (Humbly Grove)	82.6	74.34
	Avonmouth	179.3	161.37
	Wytch Farm	3.3	2.97
	Portland	0	0

* Determined in accordance with paragraph 22 of the methodology. The values assume no retainers will be taken in January 2012 and no additional capacity sales in March 2012 QSEC. These values are for guidance only and Shippers should refer to the Retainer invitation letter.

Appendix 2 – Process for Substitution Analysis

