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8.3	Submitted to Authority

# **The Incremental Entry Capacity Release Methodology Statement**

**Effective from 1<sup>st</sup> September 2009**

## INCREMENTAL ENTRY CAPACITY RELEASE STATEMENT

### Document Revision History

Version/ Revision Number	Date of Issue	Notes
1.0	July 2002	
2.0	August 2003	Minor clarifications and price schedules for new entry points (Milford Haven and Barton Stacey) included
3.0	July 2004	Minor clarifications, price schedules removed to now only appear in the Transportation Statement
4.0	July/August 2004	Changes following consultation responses
4.1	July 2005	Proposed changes consultation
5.0	August 2005	Proposed changes agreed
5.1	14 September 2005	Proposed amendment to include formal consent process prior to adjusting investment lead times
5.2	30 September 2005	Final proposed amendment to include formal consent process prior to adjusting investment lead times incorporating consultation representations
6.0	6 <sup>th</sup> April 2006	Proposals for the introduction of a methodology for the determination of investment costs
6.1	11 <sup>th</sup> May 2006	Final proposals for the introduction of a methodology for the determination of investment costs
6.2	3 <sup>rd</sup> May 2007	Proposals to generate step prices from Transportation Model (following implementation of GCM01) and revise economic test. Updated to reflect Transmission Price Control Review Final Proposals. Format changes and general updating.
7.0	12 <sup>th</sup> June 2007	Changes following consultation responses
7.0	16 <sup>th</sup> July 2007	Authority approval

7.1	May 2008	<p>Revised terminology to be consistent with new Licence drafting; diagram added to describe different capacity terms.</p> <p>Consistent with changes to the Licence, the emphasis has been changed to one of release of capacity instead of investing to deliver capacity. Changes of a minor nature to improve clarity or readability.</p> <p>Updating of references to Entry Capacity Substitution.</p> <p>Use of “prevailing” to acknowledge potential changes to obligated capacity levels.</p> <p>Reference to “project costs” changed to “project value” in respect of the provision of incremental capacity.</p> <p>Clarify Licence requirements before capacity is made available at new ASEPs and the role of the Authority in approving National Grid’s proposals.</p> <p>Clarification of processes for release of capacity under the “Accelerated Release” incentive.</p>
7.2	June 2008	Minor changes following industry consultation to improve clarity.
8.0	July 2008	V7.2 approved by the Authority.
8.1	August 2008	Amendment to error in final table of Appendix 2
8.2	May 2009	<p>Annual review and update.</p> <p>No changes made affecting the release of incremental capacity.</p> <p>Administrative and clarification changes made, specifically:</p> <ul style="list-style-type: none"> <li>• Removal of Appendix 1 which would have duplicated the 2009 Charging Methodology Statement which has been revised to include derivation of step prices.</li> <li>• Clarification added to sections on timing of release of capacity.</li> </ul>
8.3	June 2009	No further changes following consultation. Submitted to Authority 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”) employs to determine whether to release entry capacity to Users primarily in the unconstrained period i.e. beyond investment lead times. In particular, it defines under what circumstances National Grid will accept applications for incremental entry capacity from Users received through processes described in the Uniform Network Code, and thereby the level of financial commitment required from Users.

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 Charging website at:

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

One of the other documents referred to throughout this document is the “Statement of Gas Transmission Transportation Charging Methodology” which can be found at:

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

This Incremental Entry Capacity Release Methodology Statement will be applied from 1 September 2009<sup>1</sup>.

This document has been published by National Grid in accordance with Special Condition C15 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.

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](mailto:box.transmissioncapacityandcharging@uk.ngrid.com) or at:

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<sup>1</sup> Or, if earlier, the date of approval by the Authority.

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## GENERAL INFORMATION

### 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 bar<sub>g</sub>, 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 2007/08 1,050 TWh of gas was transported to these consumers.
4. This publication sets out the methodology that applies for the release of incremental entry capacity 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.
5. Details of National Grid and its activities can be found on its internet site at [www.nationalgrid.com](http://www.nationalgrid.com).  
An electronic version of this publication can be found at the following internet page "<http://www.nationalgrid.com/uk/Gas/Charges/statements/>".
6. It is important that National Grid is made aware of potential developments where incremental entry capacity may be required (at existing or new entry points) at an early stage. This is needed so that discussions can be held with the customer in relation to any additional work that may be required, including facilitating the physical connection, whether this is at a new or existing entry point. This work is charged for in accordance with National Grid's document the "Statement and Methodology for Gas Transmission Connection Charging"<sup>2</sup>) as required by Licence Condition 4B. This document and further information about connection services are also available on the National Grid website. National Grid's Customer Services team provide connection services and can be contacted via e-mail to: [transmission.newgasconnections.nts@uk.ngrid.com](mailto:transmission.newgasconnections.nts@uk.ngrid.com).

### National Grid's Licence Obligations

7. New and existing Users of the NTS are able to request to purchase entry capacity products for any NTS Aggregated System Entry Point (ASEP). Such capacity requests will be considered against the provisions of National Grid's statutory licence obligations and in accordance with its published methodologies.
8. Overriding obligations applicable to this Statement are set out in the Gas Act and the Licence.

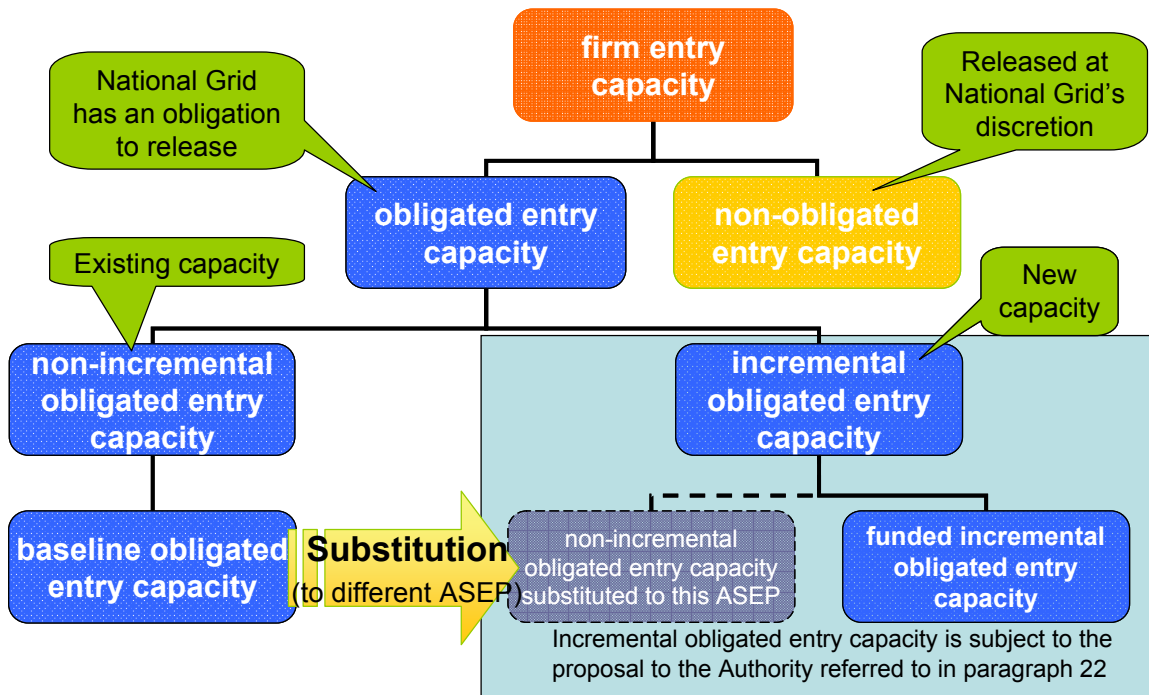
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<sup>2</sup> Previously titled "National Grid NTS Statement of Principles and Methods to be Used to Determine Charges for National Transmission System Connection Services".

9. Specific obligations in respect of the release of incremental entry capacity and applicable to this Statement are set out in Special Condition C15 and C8D of the Licence. Under Special Condition C15, National Grid must prepare and submit to the Authority for approval 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.

**Capacity Terminology**

10. 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.
11. The terminology and relationships relating to Firm NTS Entry Capacity are provided below to assist the reader in interpreting this Statement.



12. The actual definitions of these terms are contained within the Licence (Special Condition C8A). Where any conflict arises between the Licence and this Statement the Licence shall prevail.

**Planning Process**

13. National Grid believes it is appropriate for it to continue to develop the NTS in a way that provides its customers and Great Britain generally, with a gas transmission system that is robust against supply shocks and which keeps pace with changes in the gas market, such as increasing dependency on imported supplies.

14. National Grid is also required by Special Condition C2 of the Licence, "Long Term Development Statement", to prepare an annual statement, with respect to each of the succeeding 10 years that will forecast;
  - The use likely to be made of the pipe-line system; and
  - The likely developments of that system.
15. National Grid believes it is important to seek wide views on the process for determining how it invests in its network as well as on the underlying assumptions that underpin such investment. An enhanced consultation process is operated under the banner of 'Transporting Britain's Energy' with a view to obtaining industry views on how the industry would like to see the NTS developed.
16. National Grid expects the results of long term auctions to be the primary driver for investment. A sufficiently strong, unambiguous, signal in long term auctions is the start of the process for triggering the release of additional entry capacity, which National Grid would normally expect to support through investment. This Statement describes the process by which such releases of entry capacity would normally be triggered.
17. In addition to releasing entry capacity pursuant to an auction signal, National Grid may at its sole discretion, release for sale additional capacity for which it has no obligation to do so. For the purpose of the Licence any capacity released in accordance with this paragraph will be classified as non-obligated entry capacity.
18. National Grid also has a Licence obligation (Special Condition C8D paragraph 10) to consider whether unsold non-incremental obligated entry capacity can be substituted to NTS entry points where there is demand for incremental obligated entry capacity; i.e. demand exceeds the prevailing obligated level and paragraph 17 does not apply, thereby, potentially, reducing the requirement for investment in the NTS. The process by which such substitutions may be considered and the methodology that would be applied will be provided in the "Entry Capacity Substitution Methodology Statement" (the "ECS"). For the avoidance of doubt, the release of incremental entry capacity will be in accordance with this Incremental Entry Capacity Release Methodology Statement.
19. In its Direction of 17<sup>th</sup> December 2008 (un-referenced) the Authority deferred the entry capacity substitution obligation to no later than 1<sup>st</sup> March 2010 with the ECS to be submitted to the Authority for approval no later than 7<sup>th</sup> September 2009. It is intended that the ECS will be published late 2009 following industry consultation, subject to approval by the Authority. National Grid will not consider opportunities for entry capacity substitution until the obligation becomes effective, i.e. potentially not until March 2010 and any actual substitution of capacity will be effective from a future date established in accordance with the substitution rules.



## CHAPTER 1: PRINCIPLES

### Purpose of the Methodology Statement

20. This Methodology Statement has been produced to meet the requirements of Special Condition C15 of the Licence. This condition requires the preparation of a statement setting out the methodology by which National Grid will determine whether to make incremental entry capacity available for release to Users of the NTS. National Grid believes the content is consistent with its duties under the Gas Act and the Licence.
21. For the purpose of this document, incremental entry capacity means capacity in excess of the prevailing level of obligated entry capacity and consists of incremental obligated entry capacity and non-obligated entry capacity as determined in accordance with Special Condition C8D of the Licence.
22. Where National Grid believes, pursuant to the application of this methodology (except where paragraph 17 applies), that there is, or will be, demand for additional firm entry capacity, National Grid will make a proposal to the Authority to release that capacity as incremental obligated entry capacity detailing the volumes to be treated as:
  - Non-incremental obligated entry capacity where the demand for additional capacity can be satisfied in whole or in part through entry capacity substitution (in accordance with Licence obligations); and/or
  - Funded incremental obligated entry capacity.
23. Other than for the release of non-obligated entry capacity (in accordance with paragraph 17 above), the methodology will normally be applied to periods following a default lead time of 42 months from the capacity auction. However, under the terms of the Licence National Grid may vary the lead time from 42 months. Where this takes place, this will be clearly signalled to Shippers via the auction process.
24. Consistent with the Licence and the Uniform Network Code, the release of NTS Firm Entry Capacity is a firm commercial capacity right that may be offered on a daily basis or multiples thereof: it does not reflect a commitment or obligation upon National Grid to undertake any investment on its network.

### Remuneration for Release of Incremental Obligated Entry Capacity.

25. This methodology has been developed in good faith reflecting National Grid's understanding of the statutory obligations attached to both National Grid and the Authority, and its understanding of the regulatory framework which ensures continued remuneration of properly incurred expenditure on regulated assets.
26. For the avoidance of doubt, National Grid believes that any release of incremental obligated entry capacity is subject to approval by the Authority, whether explicitly in response to a specific proposal or implicitly through the establishment and application of the methodology specified in this Statement.
27. National Grid believes that, by giving that approval, the Authority accepts that the implications of applying this methodology, including subsequent investment undertaken by National Grid with a view to physically meeting the demand for funded incremental obligated entry capacity, should be reflected in subsequent regulatory decisions, notably regarding proposals to modify the price controls and incentives defined within the Licence.

28. In this context, National Grid believes that any such approval should be regarded as establishing an expectation that associated investment should be reflected in its assumed regulatory asset value<sup>3</sup>; that any proposals for revising the quantities of obligated entry capacity should be demonstrably consistent with the entry capacity incentive structure (such that the terms on which capacity may have previously been released will not be significantly altered for either National Grid or Users); and that proposals for revising the entry capacity buy-back incentive parameters should demonstrably allow for the level of incremental entry capacity released. National Grid believes this is consistent with the Authority's duty to ensure National Grid is able to finance its functions.

### Methodology Objective

29. The primary purpose of this methodology for determining incremental entry capacity volumes is to indicate the way in which National Grid will interpret the results of long term entry capacity auctions in terms of whether or not to seek to allocate incremental entry capacity rights to Users. In considering this, National Grid believes it is appropriate to consider the financial incentives it faces under conditions of the Licence, in particular as a result of the entry capacity investment and incremental capacity delivery incentives or maximum revenue entitlement allowed under, for example, the accelerated release of incremental obligated entry capacity. However, National Grid also believes it is important for the assessment to be set in the context of its wider obligations. The methodology set out in this Statement therefore seeks to describe the circumstances in which National Grid believes there would (or would not) be a sufficient signal from entry capacity auctions to create a presumption in favour of releasing incremental entry capacity.

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<sup>3</sup> National Grid understands that, as with the approach to price controls to date, Ofgem would wish to assure itself that any such capital expenditure had been efficiently incurred.

## CHAPTER 2: DECISION MAKING METHODOLOGY

### Information from Long Term Entry Capacity (QSEC) Auctions.

30. Information for considering whether or not to release incremental entry capacity will be based on indications of Users' demand for entry capacity as revealed by the relevant process described in Uniform Network Code.
31. In accordance with the Uniform Network Code requirements Users will be invited to indicate, for each of a set of prices, the quantity of entry capacity they wish to acquire (if any) at each ASEP, in each available period. These prices will be published in National Grid's Statement of the Gas Transmission Transportation Charges. The pricing methodology used to generate these prices is included in Chapter 3, and forms part of this methodology.
32. The pricing methodology establishes the prices per unit of capacity which are the minimum National Grid would expect to receive over a sustained period in order to justify releasing incremental obligated entry capacity at any given ASEP.
33. The  $P_0$  price is that price at which National Grid would release, in response to valid bids, up to the available quantity of non-incremental obligated entry capacity – all bids will be accepted so long as the available quantity is not exhausted. This minimum available quantity will be calculated and published in accordance with the Licence conditions.
34. The incremental prices for each step of incremental entry capacity ( $P_1$  to  $P_{20}$ ) are based on the long run incremental cost of providing additional entry capacity above the prevailing obligated entry capacity level at each ASEP.
35. As described in Chapter 3, incremental prices have been calculated for each price step by estimating the cost associated with physically providing each level of incremental entry capacity, annuitising the cost, and adding this value to the  $P_0$  price. This approach produces price steps whereby the change in National Grid's income from bidders, assuming all of the available quantity is sold at the incremental price step is equal to the estimated cost of providing incremental capacity over the period in question.

### Estimated Project Value

36. For the purposes of determining the required commitment from bidders that would normally trigger the release of incremental entry capacity, should auction bids satisfy the test given in paragraph 43, an estimated project value will be calculated for each incremental entry capacity level from the final incremental step prices as detailed in the Statement of Gas Transmission Transportation Charging Methodology.
37. The methodology for proposing that incremental obligated entry capacity should be released (described below) compares the strength of market signals for the incremental entry capacity against the estimated project value for providing the incremental entry capacity.

### Procedure for Allocating Incremental Entry Capacity

#### Qualifying Bids

38. In accordance with Uniform Network Code processes, all Quarterly NTS Entry Capacity (QSEC) bids posted by the end of the bid process will be assessed. Only bids that satisfy

the relevant User credit and security<sup>4</sup> requirements as specified in Uniform Network Code will be considered in this procedure.

### **Obligated Capacity Allocation**

39. Where the aggregate quantity specified in valid bids at the  $P_0$  price is less than or equal to the available quantity of non-incremental obligated entry capacity then capacity will be allocated to satisfy all requests in full. The “available quantity” will be determined in accordance with Special Condition C8D of the Licence.

### **Incremental Capacity Allocation**

40. In respect of any ASEP where a minimum quantity of incremental entry capacity is demanded in any quarter National Grid will consider releasing incremental entry capacity to meet that demand.
41. National Grid will, for the quarter in question plus the subsequent thirty one quarters (or less where this would be beyond the period for which capacity has been offered), determine the net present value (NPV) of the revenue from bids for incremental obligated entry capacity which would be accepted if the given quantity of incremental obligated entry capacity was released.
42. The “quarter in question” will normally be the first quarter following the default lead time referred to in paragraph 46 where the aggregate volume of valid bids received first exceeds or equals the quantity of non-incremental obligated entry capacity plus the quantity of incremental obligated entry capacity that is being considered. However, at any given ASEP more than one quantity of incremental obligated entry capacity may be considered in which case the NPV test may be applied from more than one quarter. All values will be discounted to the relevant quarter on a quarterly basis using an annual discount factor of 8.3% (6.25% plus inflation).
43. If the NPV equals at least 50% of the “estimated project value”, then National Grid would make a proposal to the Authority to release that quantity of incremental entry capacity as incremental obligated entry capacity under the terms of the Licence as detailed in paragraph 22. There would be a presumption that such incremental obligated entry capacity should be released and allocated to Users. The “estimated project value” for each capacity level will be calculated in accordance with the Statement of Gas Transmission Transportation Charging Methodology and will be published alongside incremental step prices. A simple example showing how the NPV test works is given in Appendix 1.

### **Timing of Release of Incremental Obligated Entry Capacity**

44. Following successful bids by Users (i.e. that pass the NPV test) and a proposal for the allocation of incremental obligated entry capacity being approved by the Authority, National Grid has obligations to make that capacity available from a point in the future. In order to deliver against these obligations, National Grid may undertake such system reinforcements as it considers necessary.
45. In the event that National Grid’s proposals are not approved by the Authority National Grid will not allocate incremental obligated entry capacity but may, at its sole discretion, release non-obligated entry capacity.

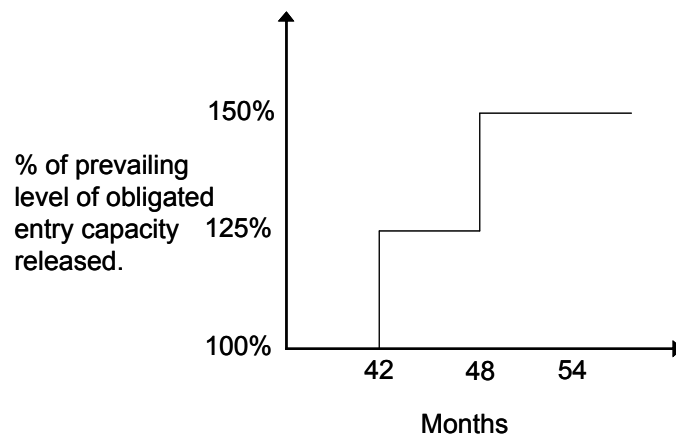
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<sup>4</sup> UNC Modification Proposal 0246 (or alternatives) - Quarterly NTS Entry Capacity User Commitment – will, if implemented, introduce new security requirements.

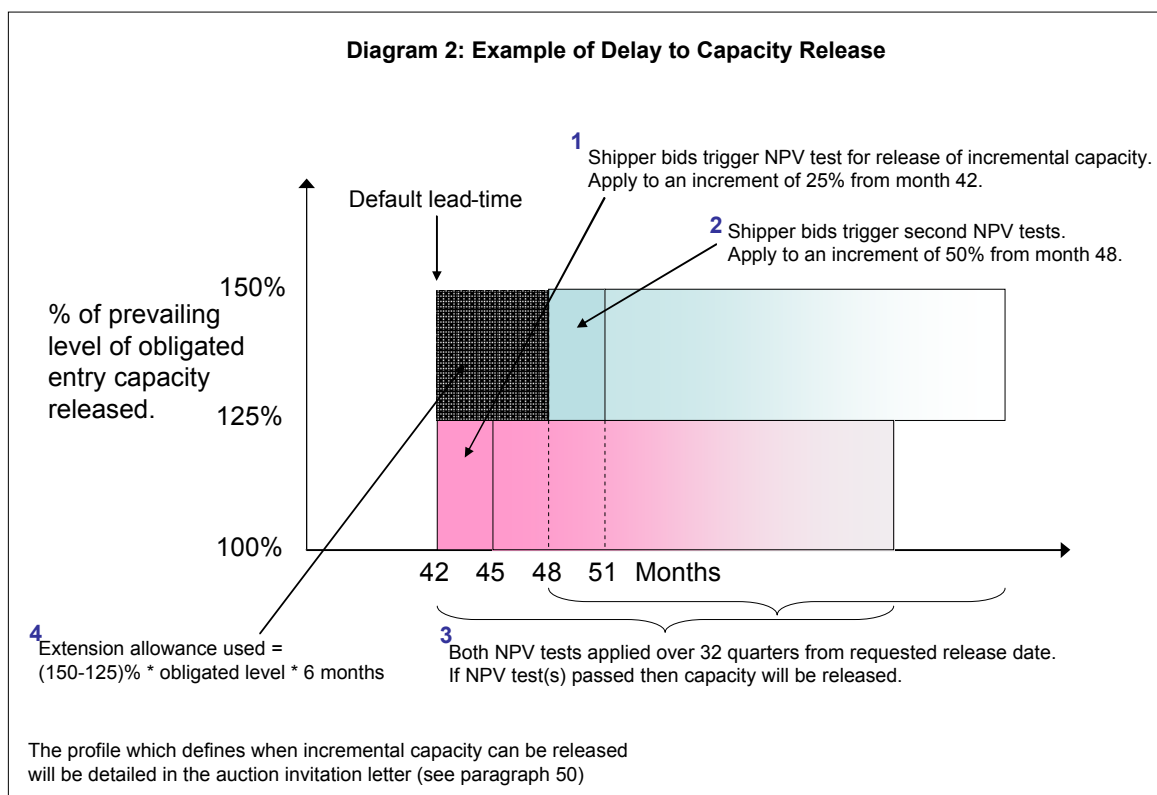
46. National Grid shall release incremental obligated entry capacity for use subject to a default lead time of 42 months. The application of the default 42 month lead time shall be as outlined within Special Condition C8D paragraph 3g of the Licence, i.e. from the 1<sup>st</sup> day of the month following the end of the annual invitation period of the QSEC auction (e.g. the 42 months starts on 1<sup>st</sup> October 2009 for a successful bid placed in the September 2009 QSEC auction).
47. National Grid is encouraged, through incentives established in the Licence (Special Condition C8D paragraph 3g-i), to reduce, where it can, the default lead time between the auction signal and the start of its contractual obligation to make incremental obligated entry capacity available. Hence National Grid is incentivised to take on that contractual obligation earlier.
48. The same Licence condition also provides National Grid with a limited number of opportunities to extend the 42 month default lead time for making incremental obligated entry capacity available. Such increases to the default lead time may be caused by the length of time required to obtain consents or construction challenges (for example which would require a construction season of more than one year).
49. The Licence defines the limit in terms of a total cap on the number of months of allowed delay for a total quantity of entry capacity. This limit may be increased to the extent that incremental obligated entry capacity is released early in accordance with paragraph 47. Where such opportunities have been exhausted, National Grid may extend the 42 month default lead time for the release of incremental obligated entry capacity only with the consent of the Authority.
50. Where National Grid assesses in advance of a QSEC auction that it may be unable to meet a potential obligation to release any anticipated incremental obligated entry capacity within the 42 month default lead time National Grid will notify bidders of:
  - the relevant ASEP(s);
  - the amount, if any, of incremental obligated entry capacity that could be released with the 42 month default lead time; and
  - the revised contractual capacity release date, beyond the default 42 month lead time, for the remaining anticipated incremental obligated entry capacity quantity that would be appropriate at the affected entry point.

This is shown in Diagram 1 below:

Diagram 1: Example of format of pre-auction notification of earliest possible release of incremental obligated entry capacity at a given entry point.

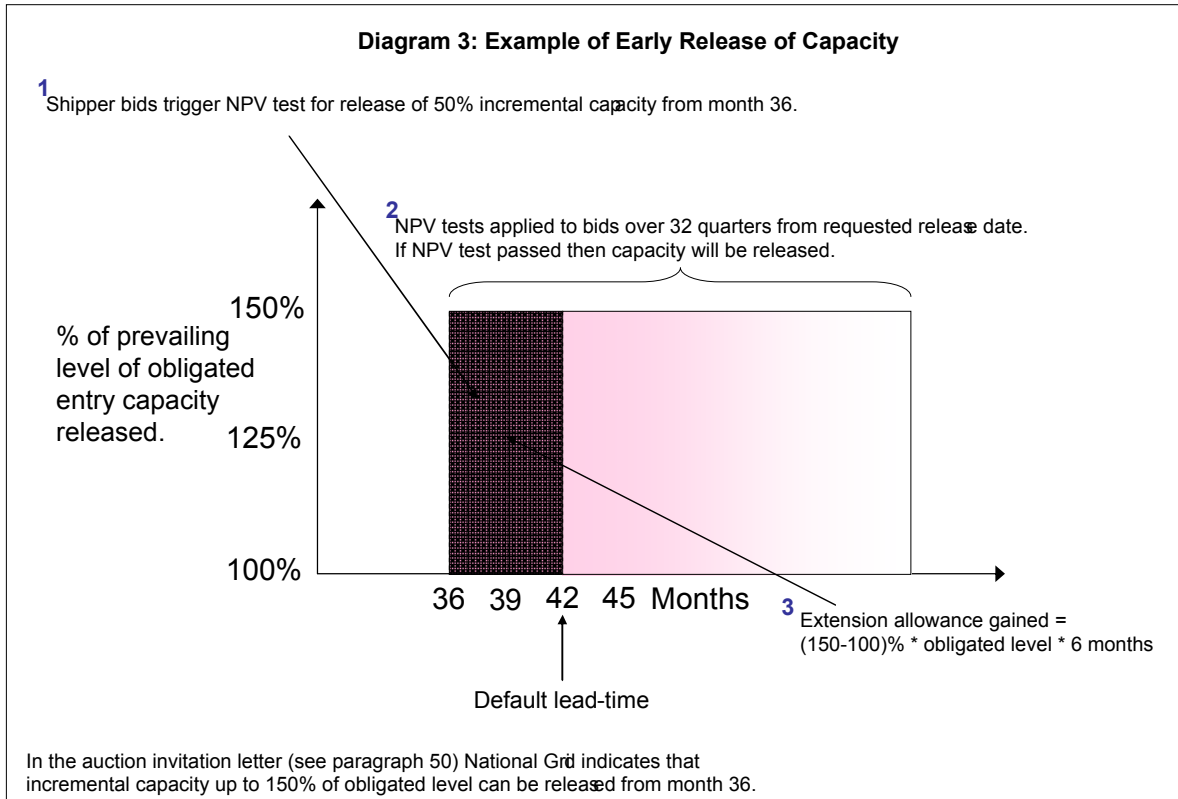


51. In the above example, at a given entry point, only 125% of the obligated entry capacity will be released as incremental obligated entry capacity with a 42 month lead time. The remaining volume up to 150% of obligated entry capacity will be made available with a 48 month lead time.
52. Where paragraph 50 applies, the lead time, and above information, will be specified in the relevant QSEC auction invitation letter.
53. In assessing any lead time, National Grid will take into account any preliminary works agreements signed with, and underpinned by, relevant counter-parties ahead of the relevant auction.
54. Where paragraph 50 applies, the “quarter in question” referred to in paragraph 42 (i.e. the date from when the NPV test will be applied) will be the first quarter that any incremental obligated entry capacity requested through valid auction bids can be first released.
55. National Grid will only use its allowed extension to capacity release dates to the extent that valid bids for incremental obligated entry capacity are placed and accepted which match the amount of incremental obligated entry capacity which was subject to a variation from the default 42 month lead time as shown in diagram 2 below.



56. National Grid will notify relevant Users of such extensions following assessment of the QSEC auction and determination of the necessary investment works, if any, required to support successful bids for incremental obligated entry capacity release.
57. The above paragraphs 50 to 56 refer to increases from the default lead time but apply equally to decreases and should be read accordingly.

58. Consistent with paragraph 55 National Grid will only gain the amount of allowed extension to the default lead time through the early release of incremental capacity (in accordance with paragraph 49) to the extent that valid bids for incremental obligated entry capacity are placed and capacity is allocated (as a result of satisfying the NPV test described in paragraph 43) with an earlier release date than the 42 month default (as shown in diagram 3 below).

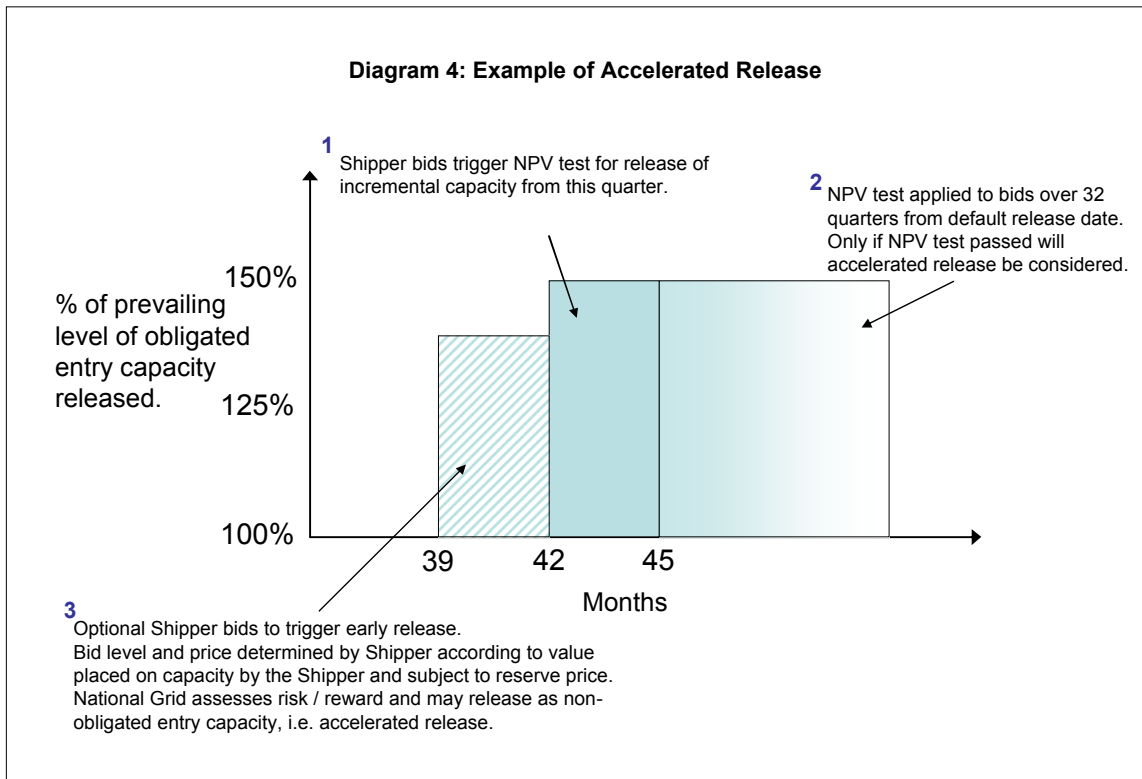


**Timing of Release of Non-Obligated Entry Capacity**

- 59. In addition to the variation of the default lead time<sup>5</sup> for releasing of incremental obligated entry capacity described in paragraphs 47 to 58 the Licence (Special Condition C8D paragraph 3f) also establishes an incentive mechanism which encourages National Grid to make incremental entry capacity available to Shippers in advance of the default lead time in certain circumstances, known as ‘accelerated release’. For Licence purposes this capacity is classified as non-obligated entry capacity but is still Firm NTS Entry Capacity for Shipper purposes.
- 60. As stated in paragraph 6, it is important that new projects and increased requirements at existing ASEPs are discussed with National Grid at an early stage. This is particularly important where Shippers would like incremental entry capacity earlier than the default lead time. National Grid will then be able to explore options to facilitate such a request and, if possible, will signal the potential for early release of non-obligated entry capacity in the auction invitation letter.
- 61. National Grid may release non-obligated entry capacity under the accelerated release incentive as shown in diagram 4 below. Such release will be subject to satisfaction of the following two criteria:

<sup>5</sup> This may be reduced in accordance with paragraph 47.

- Shipper bids satisfying the NPV test referred to in paragraph 43. For the avoidance of doubt, the test shall be applied from the default 42 month lead time except where this is adjusted in accordance with paragraph 47; and
- Satisfactory assessment by National Grid of the associated risks and rewards.



62. Shippers can signal their requirement for the release of non-obligated entry capacity under the accelerated release incentive at any ASEP, irrespective of whether discussions have taken place in accordance with paragraph 60, by placing, in the QSEC auction, appropriate bids ahead of the lead time. In all cases National Grid shall undertake the risk / reward assessment, and hence decide whether to release non-obligated entry capacity, after completion of the QSEC auction.
63. Capacity will only be released under the accelerated release incentive to satisfy (in whole or part) actual bids received. This means, for example, that if Shippers signal a requirement for a quantity of incremental entry capacity as identified below:
- Months 37 to 39: quantity Q which can be met through accelerated release (non-obligated entry capacity)
  - Months 40 to 42: no bids
  - Months 43 onwards: quantity Q which will be met through release of incremental obligated entry capacity
- then National Grid will have no obligation to release any non-obligated entry capacity for months 40 to 42 in any future auction, including monthly auctions.
64. In accordance with paragraph 17 National Grid may also release non-obligated entry capacity, with or without the need for investment, in the absence of an unambiguous auction signal.



## CHAPTER 3: INCREMENTAL ENTRY CAPACITY PRICING METHODOLOGY

### Introduction

65. The objective of the incremental entry capacity pricing methodology is to produce a range of price steps which affords Users an opportunity to reveal their requirement for entry capacity, but which also reflects the estimated project value for providing entry capacity beyond the prevailing level of obligated entry capacity identified under the Licence. The underlying cost assumptions are forward looking and are informed by present day cost estimates for pipe laying and associated activities to provide new capacity.

### Derivation of Long Run Marginal Costs and Long Run Incremental Costs

66. The Long Run Incremental Cost (LRIC) approach derives costs which represent the cost of providing capacity to transport increments of gas through the NTS. The LRIC methodology uses the Long Run Marginal Cost (LRMC) methodology described within the Statement of the Gas Transmission Transportation Charging Methodology. Whilst the LRMC methodology considers only the marginal costs associated with a given supply and demand scenario, the LRIC methodology considers various incremental capacity levels above a given obligated capacity level to calculate the estimated incremental costs of moving from the obligated capacity level to the incremental capacity level.
67. The NTS Capacity Charging Model is used to calculate LRMCs and comprises:
- **The Transport Model** that calculates the LRMCs of transporting gas from each entry point (for the purposes of setting NTS Entry Capacity Prices) to a “reference node” and from the “reference node” to each relevant offtake point.
  - **The Tariff Model** that adjusts the LRMCs to maintain an equal split of revenue between Entry and Exit users (where entry prices are used to set auction reserve prices).
- These models are described in more detail in the Statement of Gas Transmission Transportation Charging Methodology.
68. Prices for each Gas Year are calculated using the relevant year’s 1-in-20 peak base case supply and demand data and network model (e.g. if setting entry capacity prices for Gas Year 2009/10, the base case supply/demand forecast for 2009/10 and the base network model are used).
69. The  $P_0$  price for each NTS entry point is set equal to the Reserve Price, determined at the prevailing obligated entry capacity level in accordance with the Gas Transmission Transportation Charging Methodology.
70. Price steps above  $P_0$  (i.e.  $P_1$ ,  $P_2$  and so on) which reflect incremental entry capacity are set by adjusting supply flows from the base case data to reflect the appropriate incremental capacity level at each NTS entry point.
71. For each price step, the marginal distances (i.e. the distance which an incremental entry flow would travel) derived from this process are compared to the marginal distance corresponding to the prevailing obligated capacity level.

72. The differential between the marginal distances is then used to calculate the capital cost of accommodating the incremental entry flow (for that price step). The capital costs are annuitised and adjusted to reflect the calorific value at that NTS entry point.
73. The price steps are also adjusted to ensure that a progression of prices is established i.e. there is a minimum price step size between successive price steps. This is required to allow a cleared price to be established in the auction.
74. Normally, this results in a price progression that increases with the increment of capacity (an ascending price curve). A price progression that decreases with incremental capacity level may also be observed, usually for new NTS entry points where connecting pipeline costs are added to the initial price progression.

### Incremental Step Sizes for Existing NTS Entry Points

75. Subject to paragraph 78, the incremental step sizes to be offered at auction are dependent upon the obligated entry capacity at each NTS entry point defined by the Licence. In accordance with the Uniform Network Code (Section B – 2.2.3 (c) & (d)), twenty increments will be offered.
76. For the avoidance of doubt, at any given time, the prevailing obligated entry capacity level incorporates:
- Non-incremental obligated entry capacity which comprises of
    - Initial baseline obligated entry capacity set out within the Licence; and
    - Entry capacity that has been substituted to or from the NTS entry point as a result of National Grid's Entry Capacity Substitution methodology
  - Funded incremental obligated entry capacity that has previously been released
77. Price steps will usually be based on releasing capacity increments equal to 2.5% of the prevailing obligated entry capacity level at the relevant entry point. For example, the second price step ( $P_2$ ) represents the minimum price at which valid bids for at least 105% of obligated entry capacity would need to be received before National Grid would consider releasing incremental obligated entry capacity equivalent to 5% of the prevailing obligated entry capacity level at that entry point.
78. Fewer increments will be specified at the smallest entry points. At NTS entry points that have a prevailing obligated entry capacity level that is less than 300GWh per day then the following will apply;
- In the first instance National Grid will determine the number of 15GWh increments required to offer no less than 50% of the obligated entry capacity level. The chosen increment size approximates to the increment that would be required if 300GWh is offered in 20 equal sized increments.
  - No less than five increments are permitted. In instances where the application of a 15GWh increment infers that less than five increments will be required then a quantity that is equivalent to no less than 50% of the prevailing obligated entry capacity level at the relevant NTS entry point will be divided into five equal sized increments.
79. Additional price steps might be required in circumstances where demand is expected to exceed 150% of the prevailing obligated entry capacity level. Broadly this circumstance can

arise at locations that have previously experienced high demand and at new entry points where no obligated entry capacity has previously been released.

80. At entry points where the planning process has signalled to National Grid's satisfaction that more than 50% capacity above the prevailing obligated entry capacity level may be demanded in a given year, National Grid would set price steps on the basis of quantities which were expected to exceed the indicated demand.

### Incremental Step Sizes for New NTS Entry Points

81. From time to time demand may emerge for entry capacity at new NTS entry points. When, through its planning process, a requirement for a new NTS entry point has been demonstrated to National Grid's satisfaction, a price schedule will be published for subsequent long-term entry capacity auctions. Preservation of commercial confidentiality is an important consideration when developing a new entry point and therefore National Grid will publish price steps that seek to preserve confidentiality with respect to expected deliverability.
82. The number of price steps will be fixed and the aggregate size will be subject to a range of uncertainty as follows;
- The minimum number of price steps will be 20 increments of 15GWh each.
  - The maximum number of price steps will be 20 increments of equal size, which in total are equivalent to 150% of the capacity requirement signalled to National Grid through its planning process.
83. Where a new NTS entry point is required to be established, Ofgem will be required to initiate the process necessary to modify the Licence such that the new entry point concerned is identified in the Licence. Until such modifications to the Licence are effective National Grid is unable to include the proposed new entry point in any long-term entry capacity auctions and incremental entry capacity will not be available for release at the proposed new entry point.
84. The methodology, which applies for new entry points, is consistent with the methodology outlined above for existing entry points, except that there are two main differences:
- Price steps at locations that have a zero obligated entry capacity level, such as new entry points, will commence at an initial price of zero, i.e.  $P_0 = \text{zero}^6$ .
  - In the case of National Grid building any connecting pipe between the existing NTS and the proposed new entry point, an estimate of the extension costs will be annuitised and added to each of the incremental step prices ( $P_1$  to  $P_{20}$ ). Any request to build a connecting pipeline must be agreed with National Grid in a timely manner to allow a reasonable estimate of the extension costs to be obtained.

### Pricing Recalculation

85. From time to time, when National Grid believe that there has been a substantial change to cost drivers, including the supply/demand balance, investment cost assumptions or network topology, it will be appropriate for National Grid to recalculate price schedules in light of any change. It is not anticipated that release of non-obligated entry capacity would normally trigger such a re-calculation unless the release is for a sustained period.

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<sup>6</sup> This is subject to a Charging Methodology change proposal such that the  $P_0$  prices are calculated on the same basis for all entry points.

## Appendix 1: Example of the NPV test

This example is provided as an indication of how the methodology to release incremental entry capacity is applied. It should not be taken as being indicative of actual step prices, project values, or the ease with which release of capacity may be triggered.

Assume:

1. for simplicity there are only 5 price steps
2. the obligated volume is 100GWh/d
3. Q1 is April 2013

National Grid publishes the following Price Schedule to apply in a QSEC auction.

Available (GWh)	Price Label	Price (p/kWh/d)	Estimated project Value (£m)
150	P <sub>5</sub>	0.06	20
140	P <sub>4</sub>	0.05	16
130	P <sub>3</sub>	0.04	12
120	P <sub>2</sub>	0.03	8
110	P <sub>1</sub>	0.02	4
100	P <sub>0</sub>	0.01	0

Assume the following bids are obtained through the auction:

Supply			Demand																	
Available (GWh)	Price Label	Price (p/kWh/day)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	...	Q32
150	P <sub>5</sub>	0.06	100	100	120	120	110	100	100	100	100	100	100	100	100	100	100	100	...	100
140	P <sub>4</sub>	0.05	100	100	120	120	110	100	100	100	100	100	120	100	100	100	100	100	...	100
130	P <sub>3</sub>	0.04	100	100	130	130	120	100	130	130	100	100	130	125	100	100	110	110	...	100
120	P <sub>2</sub>	0.03	100	100	135	135	120	100	135	131	110	100	132	125	100	100	120	120	...	100
110	P <sub>1</sub>	0.02	100	100	140	135	130	100	140	140	120	100	134	125	100	100	120	120	...	100
100	P <sub>0</sub>	0.01	100	100	145	140	131	100	140	140	120	100	135	130	100	100	120	120	...	100

Q3 is the first quarter where aggregate capacity bids are placed at the relevant step price. Therefore, there is a signal to release 130GWh per day from Q3. Although 145 GWh per day was bid this was not at the relevant step price. The clearing price for Q3 and Q4 would be P<sub>3</sub>, P<sub>1</sub> for

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Q5, P3 for Q7 and Q8 and so on. This means that there is a signal for 30GWh per day of incremental obligated entry capacity. The NPV test is applied as below:

It is possible that there could be second signal (not shown in the example) for release of a greater incremental quantity from a later quarter. National Grid will apply the NPV test against both signals, and if successful, will release entry capacity consistent with both sets of bids.

			Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Jan-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16		Jul-20
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16		Q32
<b>Incremental Capacity to release</b>	<b>GWh</b>	<b>(a)</b>	0	0	30	30	30	0	30	30	20	0	30	30	0	0	20	20		0
<b>Clearing Price</b>	<b>p/kWh/d</b>	<b>(b)</b>	0.01	0.01	0.04	0.04	0.02	0.01	0.04	0.04	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01		0.01
<b>Days per quarter</b>	<b>day</b>	<b>(c)</b>	92	90	91	92	92	90	91	92	92	90	91	92	92	91	91	92		91
<b>Incremental Revenue</b>	<b>£m</b>	<b><math>\frac{(a)*(b)*(c)}{100}</math></b>	0.00	0.00	1.09	1.10	0.55	0.00	1.09	1.10	0.18	0.00	1.09	0.28	0.00	0.00	0.18	0.18		0.00
<b>NPV Test</b>	<b>£m</b>	<b>50% Project Value</b>	6																	
<b>NPV of Revenue</b>	<b>£m</b>	<b>2.01%</b>	6.0																	

As the NPV of the revenues (£6.0) = 50% \* Project Value (£12m), the NPV test is passed and 30GWh/d would be released from Q3 as incremental obligated entry capacity.