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# **Informal Consultation on Entry Capacity Substitution**

**15 May 2009**

national**grid**

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## 1. General Introduction

- 1 National Grid Gas plc (“National Grid”) is the holder of the Gas Transporter Licence (the “Licence”) in respect of the National Transmission System (the “NTS”). The Licence is reviewed periodically (every five years) in the Transmission Price Control Review (“PCR”). The review is concerned with setting, principally, National Grid’s allowed revenues as the owner and operator of the NTS in Great Britain. At the time of the PCR National Grid’s rights and obligations are reviewed and may be amended.
- 2 The 2007 PCR introduced new obligations on National Grid in respect of the substitution of NTS Entry Capacity. This new obligation has been the subject of much industry debate.
- 3 This document reviews the debate on the “entry capacity substitution” obligation and seeks views on the proposals developed and the issues that need to be resolved before National Grid is able to present formal proposals to the Authority. It is intended that responses to this document will provide National Grid with sufficient information on the views of industry players to formulate an entry capacity substitution methodology statement. The methodology statement will then be formally consulted upon and subsequently put forward to the Authority in accordance with the timelines specified in the Licence<sup>1</sup>.
- 4 In addition to the methodology statement National Grid will develop associated proposals, e.g. a UNC modification proposal, as is necessary to implement the final proposals.

### 1.1. Background

- 5 Development of an entry capacity substitution methodology has taken place in parallel with a number of other regime changes introduced by the 2007 PCR, principally a revision of baseline entry capacity values for entry points. It was initially intended that the obligation would come into effect with the new Licence in September 2007. However, in consideration of the issues raised in respect of consultations on baselines and substitution, on 5th September 2007 the Authority issued a Direction delaying the substitution obligations until May 2008. The Direction can be found on Ofgem’s website at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Untitled218-07.pdf&refer=Networks/Trans/GasTransPolicy/TTS>

- 6 On 1st February 2008 National Grid issued a document that summarised the development of potential proposals for entry capacity substitution and the interaction with entry capacity baseline revisions. In this document a range of fundamental issues were discussed and industry views sought. This document can be found at:

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

- 7 The findings were presented at the Transmission Workstream meeting on 6th March 2008 and can be found at:

<http://www.gasgovernance.com/NR/ronlyres/1996CBD3-D3AA-47CE-BC44-B28301A70BC9/23994/EntrySubstitutionWorkstreamMarch08.ppt>

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<sup>1</sup> As amended by the Authority’s direction dated 17<sup>th</sup> December 2008.

- 8 In consideration of the further issues raised by the February 2008 consultation the Authority issued another Direction to delay the substitution obligation. This Direction set a revised date for submission of a proposed methodology statement of 6<sup>th</sup> January 2009. The Direction can be found on Ofgem's website at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Direction%20issued.pdf&refer=Networks/Trans/GasTransPolicy/TTS>

- 9 National Grid arranged a series of workshops (Substitution Workshops 1 to 4) held between 8<sup>th</sup> April and 9<sup>th</sup> July 2008 to review issues and to provide a worked example showing the possible effects of entry capacity substitution on donor ASEPs. Workshop minutes and presentations can be found on the Joint Office website at:

<http://www.gasgovernance.com/Code/Workstreams/TransmissionWorkstream/2008Meetings/>

- 10 The workshops culminated with National Grid undertaking, on 7<sup>th</sup> July 2008, an informal consultation on a possible entry capacity substitution methodology statement. This methodology forms the basis of current proposals and is discussed in Section 2. Updated proposals discussed in Section 6 build on this initial methodology. The informal consultation was reviewed at substitution workshop 4 which led to supplementary questions being raised on 17<sup>th</sup> July 2008. A summary of responses was presented at Transmission Workstream on 7<sup>th</sup> August 2008 and a conclusions report published on 16<sup>th</sup> September 2008. The consultation documents can be found at:

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

- 11 Whilst acknowledging the considerable amount of work undertaken leading up to the July 2008 consultation Ofgem were responsive to concerns expressed and felt it appropriate to allow more time for the development of a substitution methodology. Hence on 17<sup>th</sup> December 2008 a further Direction was issued to delay the implementation of the substitution obligation. This revised the date for delivery of a proposed methodology statement until no later than 7<sup>th</sup> September 2009. This date still stands and allows time for Ofgem to undertake an impact assessment prior to a decision on the proposal in December 2009. This letter can be found on the Ofgem website at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=December%202008%20Substitution%20Derogation%20Notice.pdf&refer=Networks/Trans/GasTransPolicy>

- 12 In anticipation of, and following, the latest Direction, National Grid arranged a further series of workshops (Substitution Workshops 5 to 8) held between 5<sup>th</sup> December 2008 and 7<sup>th</sup> April 2009. Workshop presentations and minutes can be found on the Joint Office website at:

<http://www.gasgovernance.com/Code/Workstreams/TransmissionWorkstream/2008Meetings/>  
and

<http://www.gasgovernance.com/Code/Workstreams/TransmissionWorkstream/2009/>

- 13 In the latest series of workshops National Grid considered a full range of methodologies for substitution and refined these into three distinct options which are discussed in more detail in Section 6 of this report. National Grid also presented detailed worked examples to illustrate how each option might impact specific ASEPs.
- 14 This report summarises the development of substitution proposals, focusing on the more recent workshops, and seeks views on the options developed. It further seeks views on a

range of issues raised in the workshops. The results of this informal consultation will help form the basis of National Grid's preferred option which will be the subject of the formal consultation required under the Licence.

- 15 Dependant upon the precise timeline followed, responses to these issues and National Grid's conclusions will be presented at Transmission Workstream in June or July. Subsequently, and consistent with the Licence, National Grid will formally consult on its proposal for the Entry Capacity Substitution Methodology Statement no later than 27th July 2009.
- 16 Subject to the conclusions drawn from this consultation National Grid will initiate associated UNC and Charging changes that may be necessary.
- 17 Hence interested parties, wishing to influence National Grid's final proposals, should respond to this discussion paper no later than 5<sup>th</sup> June 2009.

## 1.2. Benefits

- 18 The latest PCR introduced several fundamental changes to the entry regime. The aims of the policy measures were to ensure:
- Baselines better reflect physical capability;
  - Spare capability is not sterilised;
  - Capacity is booked longer term;
  - Build periods reflect the new planning reality.
- 19 To realise these benefits a number of specific changes were made:
- Adjustment (and subsequent re-adjustment) of baselines;
  - An obligation to facilitate Entry Capacity Substitution;
  - Obligations to facilitate Entry Capacity Trade and Transfer;
  - Reduction to 10% (from 20%) of capacity held back for short term auctions;
  - Incentives to encourage early release of incremental capacity (permits / accelerated release).
- 20 The Licence defines a number of Entry Capacity Substitution objectives which the substitution methodology should facilitate. These are to:
- Ensure substitution minimises costs associated with funded incremental obligated entry capacity;
  - Ensure substitution is compatible with the physical capability of the NTS;
  - Avoid material increases in costs reasonably expected to be incurred by National Grid as a result of substitution;
  - Facilitate effective competition between shippers and suppliers.
- 21 The substitution obligation is intended, therefore, to ensure that investment in new infrastructure is not undertaken unnecessarily. The substitution obligation requires "spare" capability at one ASEP to be used to meet requests for incremental capacity elsewhere. Hence substitution should facilitate economic and efficient utilisation and development of the NTS. As part of a package of changes substitution should encourage Users to signal their capacity requirements in long term auctions thereby providing greater clarity on overall requirements such that capacity can best be made available where and when required.

- 22 The benefits to the industry of substitution materialise through the non-application of revenue drivers which are specified for each ASEP in the Licence.
- Where National Grid releases incremental entry capacity which cannot be supported by substitution of capacity from other ASEPs National Grid will require funding. This capacity is referred to in the Licence as “funded incremental obligated entry capacity” and National Grid is allowed additional revenue determined from the revenue driver for that ASEP.
  - Where the release of incremental capacity is satisfied through substitution the incremental capacity is referred to as “non-incremental obligated entry capacity” and National Grid does not receive additional funding. Hence substitution results in less revenue for National Grid than would otherwise be the case. This will be reflected in lower transportation charges which may be passed on to consumers.
- 23 In workshop 8, National Grid presented theoretical examples showing the possible effects of potential future incremental capacity releases at Barrow and a new ASEP in the South East. If “funded”, these examples would provide National Grid with additional revenue for five years as shown in the table below (there may also be on-going revenue based on a rate of return on actual investment). Where the signals are met by substitution National Grid will not receive this extra funding. Further details of the Barrow example are provided in Section 8. Both examples can be found in the workshop presentation.
- 24 These benefits should be considered in the context of overall transmission transportation costs (which Ofgem has assessed<sup>2</sup> to account for approximately 2% of domestic consumers’ bills) and revenues.
- 25 The revenue saving, based on the Licence revenue drivers, for each example is shown below. These values have been expressed as a percentage of National Grid’s allowed (TO) revenue of £1022.4m / year<sup>3</sup>. This has been translated into a potential saving on entry commodity charges<sup>4</sup> that Shippers at all ASEPs might experience assuming Shipper entry capacity charges that trigger the release of incremental capacity are equal to the Licence revenue driver. The current entry commodity charge is 0.0269 p/kWh.

Recipient ASEP	Incremental Capacity Release Gwh / Day	Additional Revenue per year (indexed)	Additional Revenue % of allowed Transportation Owner revenue	Reduction in Entry Commodity Price p/kWh
<b>Barrow</b>	215	<b>£6.3m</b>	0.6%	0.0006
<b>South East</b> (assume Tatsfield)	175	<b>£14.5m</b>	1.4%	0.0015

<sup>2</sup> Ofgem Factsheet 66 15/01/2008

<sup>3</sup> Obtained from National Grid publication “Explanation of the NTS SO and TO Commodity Charges for the formula year 2009/10” (see tables 5 and 9) found on the National Grid website at <http://www.nationalgrid.com/NR/rdonlyres/B21756A3-B845-4FFD-AAE9-719048877A42/34111/NTSChargeSettingSupportingInformationOctInd09.pdf>

<sup>4</sup> Based on an approximation of £1m additional revenue equates to 0.0001 p/kWh.

## 2. The Base Entry Capacity Substitution Methodology

- 26 Through workshops 1 to 4, National Grid developed a potential substitution methodology and consulted on this (see paragraph 10).
- 27 Workshops 5 to 8 further developed the application of a substitution methodology. However, the basic process of identifying and quantifying capacity to be substituted from a donor ASEP has remained essentially the same. This is referred to in this document as “the Base Methodology”. Accompanying this document are updated drafts of the methodology, including the Base Methodology. Variations from the Base Methodology have been developed consistent with potential options for the substitution methodology outlined in this document. The fundamentals of the process, for all options, to identify capacity for substitution are:
- Potential capacity substitutions shall be validated through network analysis.
  - The objective of this shall be to ensure that there is no material increase in costs, particularly no increase in the requirement for constraint management actions.
  - Analysis shall take into account all existing and future regulatory, statutory, and commercial commitments.
  - Analysis shall primarily, but not exclusively, be undertaken at peak 1 in 20 demand levels and shall be undertaken for a number of gas years starting with the year of proposed capacity substitution. Supply and demand scenarios shall be consistent with the Transmission Planning Code.
- 28 Whilst these criteria are not discussed in this report National Grid would welcome comments on these aspects of the methodology.
- a. **Are there any other factors that National Grid should include in the Base Methodology?**
- b. **Are there any aspects of the Base Methodology that should be excluded or amended?**
- 29 A number of issues have been identified in previous consultations and the workshops referred to above. These issues have been identified as National Grid has sought to develop options, and gain industry consensus, for implementation of the substitution obligation. Resolution of these issues will be fundamental to the implementation of a substitution methodology and are discussed in detail below. These issues include:
- Exchange rate cap (see Section 5.1);
  - Identification of available capacity for substitution (see Section 6);
    - This is the basis for the options developed through workshops 5 to 8;
  - Part-substitution, part-funding combinations (see Section 7.2);
  - Application of Entry Capacity Zones (see Section 7.3); including
    - Pro-rating within zones;
  - Transitional Rules and Soft-Landing (see Section 7.5).
- 30 Further issues are discussed within this report which have previously been debated and are included for completeness. These include;
- Single Quarter bookings (see Section 7.1);
  - New ASEPs (see Section 7.4);
  - Reserve Price Discounts (see Section 7.6).



### 3. Key Issues with Entry Capacity Substitution

- 31 Throughout the series of workshops and consultations concern has been expressed by some workshop participants at the potential for loss of capacity at donor ASEPs. The impact of substitution has been considered for three situations:
- Long term capacity projects that are economically able to trigger incremental capacity (to replace any substituted away) but may be hampered by the default lead time of 42 months.
  - Short term players with a greater reliance on the 10% of baseline capacity that is held back to the shorter term. These players are driven more by short-term commodity prices variations hence require access to capacity on a short-term basis. This type of operation can provide valuable supply flexibility at periods of high demand.
  - Marginal gas fields, where there may be a greater reliance on unsold baseline capacity and the 10% of baseline capacity withheld to the shorter term. For these projects the User Commitment needed to trigger incremental capacity release and the 42 month lead-time may be detrimental to the economics of the project.
- 32 National Grid has aimed to develop a methodology that recognises the concerns of these parties. Hence any proposals should be measured in terms of their effectiveness in protecting the genuine needs of these parties whilst meeting the substitution obligation stated in the Licence.
- 33 Two criteria have been identified that can be applied to ensure a balance between the apparently conflicting aims. These are:
- Ensuring capacity available for substitution is only substituted in an efficient manner, e.g. by applying an economic test or exchange rate cap (see Section 5); and
  - Limiting the amount of capacity available for substitution (see Section 6).
- 34 A potential argument in undertaking substitution in an unconstrained manner is that any unsold capacity is not wanted because it is unsold. Hence it has no value at the specific ASEP and substitution, without any constraints, to another ASEP would therefore be an economic and efficient action. This was a key premise in the Base Methodology.
- 35 Conversely some Shippers and upstream operators have argued that “unsold” does not necessarily equate to “unwanted”. They claim that some projects are insufficiently developed for Shippers to commit to a capacity booking at a specific time. In this scenario, if capacity is substituted away the Shipper may have to trigger, at a later QSEC auction, the release of incremental capacity to obtain capacity at the same ASEP.
- 36 Similarly the basic economic model for some entry facilities, e.g. interconnectors, is based upon capacity being obtained in the short or medium term. For these players it is not desirable to signal in a QSEC auction that capacity is “wanted”. However the introduction of entry capacity transfer and trades together with discretionary release provide additional short term commercial flexibility which these players can access.
- 37 If capacity has been substituted at a high exchange rate recovery of the previous obligated capacity level may be less economic than to fund the original incremental capacity at the donor ASEP. This is because the revenue driver associated with the donor ASEP is likely to be greater than that for the recipient ASEP due to the quantity to be recovered being greater than the initial increment at the recipient ASEP. In addition,



regardless of any exchange rate, the release of incremental capacity will be subject to a 42 month default lead time which may be inconsistent with upstream projects.

- 38 It should be noted, as demonstrated in workshops 5 and 8, that the cost to Shippers to trigger the release of incremental capacity back to the original obligated level is not significantly different to the cost of buying obligated capacity before substitution. This is due to substitution reducing the obligated level which is a key factor in the determination of entry capacity prices.
- 39 Whilst sensitive to the concerns of these Shippers and upstream operators, any methodology that places constraints on the substitution process will, if the potential upstream projects or gas flows do not materialise, result in substitution opportunities being missed and any related investment undertaken would be less economic and efficient than could have been the case. National Grid has, therefore, developed a range of options discussed below, and would welcome comments on each; specific questions are raised in each section.

## 4. Options Considered for Entry Capacity Substitution

- 40 At workshop 5, National Grid re-examined the potential options for a substitution methodology. Eleven possible methodologies were presented (see workshop presentation for details). These were:
- i. The Base Methodology (using a literal interpretation of the Licence obligation, as consulted upon in July 2008);
  - ii. Limits on quantity available for substitution;
  - iii. National Grid discretion;
  - iv. Ofgem discretion;
  - v. Simple economic test (i.e. comparison of donor ASEP value to recipient ASEP value);
  - vi. Exchange rate cap with economic test;
  - vii. Option to Buy;
  - viii. Sub-reserve prices (variant on the option to buy);
  - ix. Early warning system;
  - x. Two-stage auction;
  - xi. BGT proposal (variant on 2-stage auction)
- 41 These options can be grouped and classified in accordance with the way in which they limit the effect of substitution. Building on the Base Methodology (i):
- Options ii, vii, viii, ix, x, and xi all place limits on the amount of capacity that is available at a potential donor ASEP for substitution, either by applying a specific limit or providing an opportunity for Shippers to increase the sold quantity at an ASEP. These form the basis of the options that have been developed in more detail.
  - Options iii and iv recognise that a clear transparent methodology may not prevent inefficient substitutions from being undertaken so allows discretion to depart from the stated methodology.
  - Options v and vi aim to ensure that substitution is effected in an economic manner without excessive loss of high value capacity from donor ASEPs.
- 42 Views were sought on the options presented. Respondents were asked to score each option from 1 to 5 (5 fully satisfying the criterion) against three criteria. The three criteria were whether the option:
- Satisfies the substitution objectives as defined in the Licence;
  - Mitigates the risks that substitution presents to specific types of market participant (see paragraph 31); and
  - Can readily be implemented.

With a maximum score of 15, a preference was identified for options ii, iv, vi and x.

Option	Responses										Total
	A	B	C	D	E	F	G	H	I	J	
i) Draft Methodology	7	7	7	9	6	5	7	8		N	<b>56</b>
ii) Limits on Quantity	10	11	11	7	10	8	11	8		N	<b>76</b>
iii) National Grid Discretion	9	7	8	11	5	5	7	5		N	<b>57</b>
iv) Ofgem Discretion	10	9	11	11	5	8	11	11		N	<b>76</b>
v) Simple Economic Test	8	7	9	7	8	8	8	9		N	<b>64</b>
vi) Exchange Rate Cap / Economic Test Combination	10	10	11	7	11	8	11	11	Like	Y	<b>79</b>
vii) Option Model	8	8	7	7	3	9	7	7		Y	<b>56</b>
viii) Sub-Reserve Prices	8	8	7	9	3	7	6	7		N	<b>55</b>
ix) Early Warning System	8	11	11	9	10	5	11	9		N	<b>74</b>
x) Two Stage Auction	12	11	11	6	10	9	11	9	Best	Y	<b>79</b>
xi) BGT Proposal	6	9	10	9	4	9	10	13		Y	<b>70</b>

43 As a result of this, and other, feedback National Grid developed, in conjunction with the industry, three options that build on the Base Methodology in greater detail:

- Mechanical Approach, based on option ii.
- Option Approach
- Two-Stage Auction.

Each was developed with consideration given to an exchange rate cap, option vi.

44 These three options were developed as they represent a range of potential solutions in terms of the User Commitment required to protect capacity from substitution and are discussed further in Section 6.

45 Although Ofgem Discretion was favoured by most respondents this is a matter for Ofgem to consider. Hence this option was not pursued further through this process.

## 5. Efficient Use of Capacity Available for Substitution

### 5.1. Exchange Rate Cap

- 46 With an exchange rate cap substitutions would not be permitted where the capacity substituted from a donor ASEP is greater than “x” times that created at the recipient ASEP.
- 47 Whilst an exchange rate cap would prevent excessive loss of capacity in aggregate across all ASEPs it would not provide definitive protection of capacity at a donor ASEP. This is because substitutions at exchange rates below the cap would still proceed and it is through network analysis, undertaken after QSEC capacity bids have been made, that actual exchange rates would be determined and substitution opportunities identified.
- 48 Hence an exchange rate cap would provide no certainty that capacity would not be substituted from a specific ASEP. It might also be argued that it would not ensure that substitutions are “economic”. A 2:1 exchange rate would see an overall 100% loss of capacity compared to the incremental capacity released through substitution. Even substitutions undertaken at 1:1 could be deemed uneconomic if the capacity at the donor ASEP has a higher value (notwithstanding that it is unsold) than the recipient ASEP (see Section 5.2). However, the converse may also apply.
- 49 Previous consultations (see conclusions report – 15th Sept 2008) have exposed the problems with an exchange rate cap and some Shippers have opposed an exchange rate cap; any cap would be set arbitrarily, may be discriminatory and could drive inefficient investment by preventing otherwise sensible substitutions.
- 50 However, in the Sept 2008 consultation and subsequent workshops the majority of Shippers supported a low (close to 1:1) exchange rate cap. This could limit the potential for unforeseen consequences arising from substitution and would curb the potential for capacity destruction.
- 51 At workshop 5 when outlining its understanding of the substitution obligation, Ofgem stated that a transitional path for introducing substitution providing a soft landing could be considered. One way in which the methodology may be gradually hardened is through applying an increasing exchange rate cap as considered in paragraph 50 above.
- 52 National Grid would appreciate respondents views on exchange rate caps, specifically
- c. **Should the substitution methodology use an exchange rate cap to limit the impact of substitution on donor ASEPs?**
  - d. **Would the intended benefits of an exchange rate cap be better achieved through implementation of any of the options (Mechanical Approach, Option Approach or Two-Stage Auction) discussed in Section 6?**

If an exchange rate cap is used:

- e. **At what level should the exchange rate cap be set? Respondents may consider that a different value is appropriate depending upon other factors of the methodology, e.g. whether any of the options discussed in Section 6 is implemented.**

- f. **Notwithstanding that National Grid is obliged to review the substitution methodology on an annual basis, should the exchange rate cap be set at a low level in the expectation of increasing in future years?**

**5.2. Economic Test**

- 53 An economic test can be applied to each potential substitution to eliminate those substitutions that are uneconomic. The difficulty is in identifying a suitable test that accurately measures the value of incremental capacity at a recipient ASEP against unsold baseline capacity at a donor ASEP.
- 54 Any test is further complicated if consideration is to be given to actual exchange rates needed to achieve the substitution.
- 55 At workshop 6, National Grid presented potential parameters for an economic test. These were:

<b>Potential basis for determination of ASEP capacity “value”.</b>	
<b>Recipient ASEP</b>	<b>Donor ASEP</b>
Actual auction bid value	No corresponding value
NPV of auction bid value	No corresponding value
Incremental capacity project value (from charging model)	Project value to recover: a. TBE level; or b. Pre-auction obligated level
Pre-auction P <sub>0</sub> price * incremental capacity	Pre-auction P <sub>0</sub> price * substituted capacity
Licence Revenue Driver (for incremental capacity)	Licence Revenue Driver (to recover TBE / obligated)

- 56 The above table presents a number of options that could be used as a measure of capacity value and tries to map similar criteria for both the recipient and donor ASEP. In the case of recipient ASEP bid values, there is no donor ASEP equivalent so the value taken would be zero.
- 57 National Grid believes that an economic test would tend to favour substitutions from low price to high price ASEPs and could, therefore be considered discriminatory. In addition, like an exchange rate cap, it might not provide the protection to capacity at ASEPs that Shippers could be expecting.
- 58 Conversely, an economic test would, however arbitrarily, place a value on donor ASEP capacity. It would, as a result, place additional constraints on substitution over the Base Methodology. This constraint would be applied irrespective of whether the capacity is required at the potential donor ASEP.
- 59 Feedback from substitution workshops was that an economic test would add unnecessary complexity to the process and was generally unwelcome. National Grid had similar concerns as it would, as an additional post-auction activity, put pressure on our ability to meet existing challenging timelines to assess QSEC auction results to define investment proposals. Therefore an economic test was not developed in any detail

beyond that provided in the above table, but National Grid would welcome views on whether, and how, an economic test should be used in the substitution methodology; specifically:

- g. Do respondents consider that an economic test is appropriate or necessary for the substitution methodology?**
- h. Would an economic test add unnecessary complexity to the process?**
- i. What benefits, if any, would an economic test provide?**

If an economic test was introduced

- j. What parameters should be used for the donor and recipient ASEP values?**
- k. Are there any alternative tests that should be considered?**

## 6. Limits on Capacity Available for Substitution

- 60 As an alternative, or supplement, to using capacity efficiently in the ways described in Section 5, any adverse effects of substitution can be avoided by placing limits on the quantity of capacity that is available to be used in substitution. All other capacity will be “protected”. The key questions to be determined are: is it appropriate to apply a limit? And if so how should this quantity be determined?
- 61 Under the Licence National Grid is required to withhold a quantity of capacity from the QSEC auctions. This capacity is available for new entrants and/or for short/medium term adjustments and amounts to 10% of the baseline quantity. This is a reduction from 20% in the previous price control but should be considered with other regime changes that have increased the availability of capacity in the short/medium term.
- 62 These changes, together with the substitution obligation are intended to encourage greater long term capacity booking and hence the User commitment.
- 63 Capacity available for short term auctions will, therefore, generally be at least 10% of baseline. If existing capacity is not fully allocated in QSEC auctions then, in the absence of substitution, short term availability will be higher. When the Licence was drafted it was considered that this, together with other Licence changes, would be sufficient for the needs of those Shippers requiring short-term capacity (see paragraph 31). In addition to this National Grid has introduced “discretionary release” which has further improved short term capacity availability. Notwithstanding this, several Users have expressed concern that 10% is not sufficient capacity to be retained for AMSEC and that capacity substitution will increase the likelihood of this limit being reached. It has been made clear by Ofgem that this figure will not be reconsidered before the next price control review.
- 64 Hence there is potentially a requirement for an alternative measure to identify “protected” capacity in excess of sold levels that would meet the needs of short term players and further the substitution objectives.
- 65 In designing a substitution methodology the challenge therefore is to ensure that substitutions are only undertaken where they are economic and efficient and take into account the different and often competing needs of market participants.
- 66 As a starting point for substitution, and as specified within the Licence, National Grid is obliged to make 90% of the baseline capacity (as specified in the Licence) available within QSEC auctions and for substitution. However, any previously released incremental capacity will not be available for substitution.
- 67 To recognise the needs of market participants for short and medium term capacity National Grid has developed three proposals that would provide different levels of protection to capacity (“protected capacity”) at potential donor ASEPs. Two of the options have an associated User commitment.

### 6.1. Mechanical Approach

- 68 As an alternative to the 10% held-back National Grid has examined the feasibility of excluding from substitution, whilst retaining availability in QSEC auctions, a defined quantity of capacity at each ASEP.
- 69 A number of options have been considered:



- Historic flows;
- TBE peak flow forecasts;
- A fixed percentage of baseline quantity; or
- A fixed quantity.

National Grid feels that historic flows are inappropriate when substitution is intended to address an issue in part created by declining gas flows from terminals serving UK continental shelf supplies. The baseline percentage and fixed quantities are felt to undermine the change to the Licence reducing the quantity held back, would be arbitrary in nature and may be discriminatory.

- 70 Hence National Grid in conjunction with the industry has developed, through workshops 6-8, a methodology, the Mechanical Approach, based on the Base Methodology but with capacity protected up to the level of TBE peak flows. Initially, in this proposal only capacity in excess of forecast flows (as opposed to existing capacity allocations) and below the 90% baseline level would be substitutable (unless the sold level exceeds the forecast level).
- 71 The use of forecast supplies for the determination of the protected capacity would ensure that capacity anticipated to be required at an ASEP would remain available at that ASEP. This would ensure sufficient capacity remained accessible to each category of operator identified in paragraph 31. However a number of problems were identified when data was collated for this approach.
- 72 It was expected that the forecast level would be the highest value for the “Base Case Peak Supplies”, for years Y+4 onwards, taken from Table A2.3A of the latest version of National Grid’s Ten Year Statement. The current version can be found at:

[http://www.nationalgrid.com/NR/ronlyres/40E28736-F85F-4037-9793-6F0CED02125C/31279/Ten\\_Year\\_Statement\\_2008new.pdf](http://www.nationalgrid.com/NR/ronlyres/40E28736-F85F-4037-9793-6F0CED02125C/31279/Ten_Year_Statement_2008new.pdf)

However, the following concerns were identified:

- Peak values are not provided for individual storage facilities (except Rough which is included within the Easington ASEP). Hence an alternative is required. This presents further issues (see paragraph 77);
- Peak values at LNG imports are assessed in aggregate and then distributed between LNG terminals. Hence the peak requirement at each LNG ASEP will be understated and may be vulnerable to substitution. An alternative (as for storage points) would be required;
- New storage facilities considering connecting to existing terminals are not included in forecasts for the terminal;
- The use of forecast values could incentivise stakeholders to overstate the deliverability of their upstream projects thereby undermining and decreasing the value of the Ten Year Statement and Transporting Britain’s Energy (“TBE”) process to the industry;
- The quantity of capacity protected from substitution is not underpinned by any financial commitment from the Shipper;
- Forecasts may be inaccurate (too high or too low). In the absence of a Shipper signal to reinforce TBE forecasts un-warranted substitutions may be undertaken or opportunities missed;
- TBE is only a National Grid view, based on information provided by market participants.

- 73 To overcome some of the problems identified with TBE forecasts additional or alternative measures have been proposed. The TBE forecasts could be tempered by Ofgem / National Grid discretion to not undertake substitution where market intelligence suggests forecasts may be inaccurate or do not fully reflect potential new developments. However, National Grid believes that it is the market that has the most reliable and up to date information upon which the level of protected capacity should be determined.
- 74 To mitigate the risk of undermining the quality of the TBE process consideration has been given to alternative sources of similar data; a role for the Department for Energy and Climate Change (“DECC”) has been proposed although this has not been put to DECC. Whilst National Grid would consider utilising any reliable independent data source for forecast capacity requirements the data must be readily available for National Grid to include in its QSEC invitation letter.
- 75 The involvement of DECC, Ofgem or any other organisation to review and amend the “protected level” may add unnecessary steps and uncertainty to the process. National Grid would only consider such sources that provide unfettered access to appropriate robust data.
- 76 An alternative for LNG import facilities and storage sites (but not those potentially connecting to existing ASEPs) has been put forward. These ASEPs have all been designed to input at a specific peak rate, the “deliverability”. Whilst supplies at these facilities may be interchangeable, hence their limited inclusion within the TBE forecasts, they all have the potential to operate at full deliverability and may need entry capacity at this level. Whilst this capacity may currently be obtained in short / medium term auctions this may not be possible if the capacity is substituted away. Hence “deliverability” may be a suitable alternative to TBE forecast flow for ASEPs where TBE data is limited.
- 77 The problem, if it is a problem, with deliverability is that for all storage and LNG ASEPs deliverability exceeds 90% baseline<sup>5</sup>. This effectively reduces the ASEPs where capacity is available for substitution to a limited number of major beach terminals as shown in the table below. ASEPs not included in the table have zero capacity available for substitution due either to deliverability exceeding 90% baseline or the baseline being zero.

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<sup>5</sup> The only exception is Avonmouth where 90% baseline exceeds deliverability by 2 GWh/Day.

ASEP All units in GWh/day Smallest ASEPs and most with zero baseline excluded.	Release Obligation (see note B)			Peak sold (note C)	Protected capacity (see notes D & E)	Available for substitution (90%baseline - max of [protected,sold])
	Baseline (note A)	90% Baseline	Previous Incremental			
Avonmouth	179	161	0	22	159	2
Bacton	1783	1,605	0	895	1,488	117
Burton Point	74	66	0	13	11	53
Barrow	309	278	0	278	90	0
Easington (inc Rough)	1062	956	345	1,301	1,310	0
St Fergus	1671	1,504	0	472	1,272	232
Teesside	476	428	0	162	337	91
Theddlethorpe	611	550	0	20	90	374

A. Figures obtained from the Licence

B. Figures obtained from <http://www.nationalgrid.com/uk/Gas/Data/CMR/>

C. Includes sold incremental capacity, but excludes non-obligated capacity released

D. Protected capacity determined as 100% TBE forecast (except Avonmouth - deliverability)

As 10% baseline is withheld from QSEC, 90% TBE could be used as an alternative for Protected Capacity

E. Figures obtained from Table A2.3A from 10 Year Statement (except Avonmouth - obtained from Platts)

F. Avonmouth is the only storage/LNG ASEP with 90% baseline greater than deliverability

- 78 Limiting the scope of substitution to capacity in excess of deliverability at specific ASEPs could be considered to be discriminatory. However, substitution is intended to provide a solution to changing supply patterns as the availability of supplies at UKCS terminals (essentially those in the above table) declines. Hence, it could be argued that applying this limit is appropriate.
- 79 Workshop 7 provided a flow diagram of how National Grid anticipates the Mechanical Approach would work. This diagram can also be found in the draft methodology statement (v0.3B). At this workshop assumptions were made regarding other aspects of the approach, e.g. exchange rate cap, use of entry zones. These are subject to confirmation and are discussed elsewhere in this document.
- 80 National Grid would welcome views on whether, and how, the Mechanical Approach should be used in the substitution methodology; specifically
- i. **Do respondents prefer the Mechanical Approach over the Option Approach and/or Two-Stage Auction? Why / why not?**
  - m. **What features of the Mechanical Approach do respondents like / dislike; e.g. simplicity, lack of User commitment?**
  - n. **What criteria should National Grid use to determine the level of protected capacity at each category of ASEP (e.g. beach terminal, storage etc)?**
  - o. **Is the use of deliverability, or similar, such that substitution is limited to major beach terminals acceptable? Would this be undue discrimination?**
  - p. **Are there alternative sources of data to the TBE, deliverability that would be reliable, transparent and readily available?**
  - q. **How could a soft-landing be applied to the Mechanical Approach?**

## 6.2. Option Approach

- 81 Whilst it is recognised that Shippers may not be in a position to commit (or do not want to commit) to purchasing their capacity requirements at the time of the QSEC auction it is possible that the Mechanical Approach will excessively restrict substitution opportunities, and hence lead to inefficient investment, by over-estimating future capacity requirements.

- 82 The Option Approach has been developed to add a “User Commitment” element to the process. If Shippers are required to take out, and pay for, an “option” to protect capacity at an ASEP it is felt that the protected level will reflect much more accurately genuine future requirements.
- 83 National Grid believes that an Option Approach could work in the following manner. A process flow diagram can be found in the workshop 7 presentation and the draft methodology statement (v0.3C).
- Prior to the QSEC auction National Grid would open an “options window”. Shippers (and potentially developers) could take out an option on a quantity of capacity at any ASEP.
  - Options would be limited in aggregate to the available capacity, i.e. 90% baseline less previously sold capacity. Pro-rating among applicants would apply where necessary.
  - Options would be subject to a fee which may be refunded (see paragraph 89).
  - The option would apply for a year covering all QSEC auctions, including ad-hoc auctions for new ASEPs.
  - An option would remove the capacity from the substitution process, but it would not prevent any Shipper from obtaining the capacity in the QSEC auction. Hence when assessing substitution opportunities National Grid would substitute a maximum quantity of capacity determined as: 90% baseline<sup>6</sup> minus sold capacity minus capacity under option.
  - Substitution opportunities would be assessed in the same manner as for the Base Methodology and may be subject to an exchange rate cap and application of entry zones.
  - The option would not give the Shipper (or Developer) any rights to use the capacity covered by an option. This would need to be obtained in the normal manner at a future auction (QSEC or AMSEC etc).
- 84 National Grid believes that the option fee should be sufficiently large to discourage speculative options being taken out whilst being low enough to encourage options to be taken out in respect of genuine capacity requirements. A fee broadly reflective of the costs likely to be incurred by National Grid in the first year of an investment project would seem reasonable.
- 85 As the option would not give any rights to the capacity National Grid believes that the fee would not need to be linked to the ASEP specific capacity price. Any locational factors would be accounted for when capacity is bought. Hence it is appropriate that the same option fee should apply for all ASEPs.
- 86 National Grid’s initial proposal is for an option fee determined as:
- $\text{Fee} = \text{Quantity (kWh/Day)} * 0.0001 \text{ (p/kWh/Day)} * 365 \text{ (Days)} * 8 \text{ (Years)}$
- 87 National Grid appreciates that the selection of this proposal is somewhat arbitrary. However, it:
- Uses the minimum ASEP reserve price;

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<sup>6</sup> Substitution applies to “non-incremental obligated entry capacity” as defined by the Licence. This usually means “baseline”, but where incremental capacity has previously been release it will be re-classed after 5 years and will be available for substitution.

- Is determined over eight years, which is consistent with the test for release of incremental entry capacity detailed in the IECR<sup>7</sup> (50% of project value assessed over 32 quarters);
  - Results in a total option price of £315k for 10 mcmd which is broadly consistent with the aims of paragraph 84;
- As such National Grid believes that it is a reasonable level.

- 88 Whilst it is proposed that the option does not have a duration element, i.e. the option protects capacity from substitution for the entire period covered by the QSEC auction, it would nominally apply for one year from 42 months after the auction, i.e. from October to September of year Y+4 for an auction in March of year Y. This applicable year would be necessary to determine eligibility for option fee refunds.
- 89 National Grid believes that it would be inappropriate for Shippers to be required to pay for an option (as defined above) and then have to pay to obtain the same capacity, or potentially, see another Shipper obtain the protected capacity. For this reason option fees would be refundable in the following circumstance, this would be equally applicable to options taken out in subsequent years:
- A Shipper (either the Shipper with the option or a different Shipper) obtains the capacity for the year covered by the option (i.e. for any quarter from the original Oct-Sept Y+4) at a QSEC auction in the year for which the option is granted (i.e. an auction in the original year Y);
  - The Shipper with the option obtains the capacity in a subsequent QSEC or AMSEC auction for any quarter or month from the original Oct to Sept Y+4. Limiting refunds to QSEC and AMSEC would ensure that the refund only applies in respect of capacity bought subject to the full reserve price at the ASEP.
- 90 Any refunds in respect of option fees shall equal the actual entry capacity charges to be paid subsequent to QSEC/AMSEC auction bids placed and allocations made capped at the option fee level. These charges shall be aggregated for the year and ASEP in question and may arise as a result of bids in more than one auction.
- 91 National Grid anticipates that existing “options” functionality on Gemini could be used to run the substitutions option. Shippers would identify the ASEP and the quantity for the option. An off line solution could be developed for non-Users (e.g. developer of new storage facilities).
- 92 To minimise the need for refunds it is expected that option fees would be payable after the relevant QSEC auction and refunds would be made after appropriate capacity allocations are confirmed.
- 93 Should National Grid propose to implement the Option Approach it may be necessary to undertake a Transmission Transportation Charging Consultation and/or an associated UNC modification proposal. However, it is envisaged that the option fee shall be included in TO revenue for the year in which it is received. Any refunds will be offset against TO revenue in the year in which the refund is made. As a result National Grid will be revenue neutral. Due to the minimal amounts involved there may be a small effect on TO commodity charges to relevant Shippers.
- 94 National Grid would welcome views on whether, and how, the Option Approach should be used in the substitution methodology; specifically

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<sup>7</sup> Incremental Entry Capacity Release methodology statement.

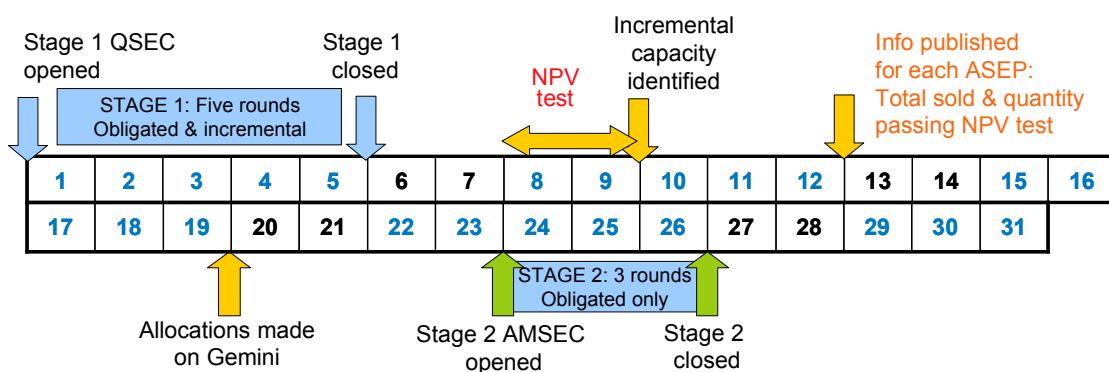
- r. **Do respondents prefer the Option Approach over the Mechanical Approach and/or Two-Stage Auction? Why / why not?**
- s. **What features of the Option Approach do respondents like / dislike?**
- t. **Bearing in mind the substitution objectives do respondents believe that it is appropriate that capacity can be protected from substitution with only a relatively small commitment from the User?**
- u. **Should the Option Approach be made available to non-Users? If so how should it be applied?**
- v. **Is the option fee set correctly?**
  - i. *Is it correct to have the same fee for all ASEPs?*
  - ii. *Are the minimum reserve price and 8 year period appropriate parameters for setting the option fee; i.e. is a fee set at approximately £300,000 for 10 mcmd correct?*
  - iii. *Are refunds in the circumstances described appropriate?*
- w. **Should the option fees and refunds be dealt with through TO charges? If not, how should they be accounted for?**

### 6.3. Two-Stage Auction

- 95 The Two-Stage Auction is very similar to the Base Methodology, i.e. capacity is only excluded from substitution if it is sold. Hence it provides a greater User commitment signal than the Mechanical and Option Approaches. Where this differs from the Base Methodology is by providing Shippers with a second opportunity to buy capacity where they feel it has become vulnerable to substitution.
- 96 The first stage of the auction would be essentially the same as the current QSEC auction, except that the number of windows would be reduced and the timing brought forward to the start of the month (see paragraph 103). In this stage Shippers would be able to buy existing capacity and could, subject to satisfying the IECR test, trigger release of incremental capacity.
- 97 After stage 1, National Grid would publish data on where an incremental capacity request had been signalled. No analysis on potential substitutions would take place at this point. Shippers could use the published data to determine whether capacity that they may have a future requirement for is vulnerable to substitution. They could then buy that capacity in stage 2 of the auction.
- 98 Stage 2 of the auction would only be held if incremental capacity had been triggered at any ASEP in stage 1. It would consist of three distinct windows where existing capacity could be obtained but it would not be permitted to trigger further incremental capacity. At the end of each bid window Shipper bids would not be able to be withdrawn or amended. Capacity will not be pro-rated to bids placed in different windows: capacity will be allocated to bids in the earliest auction round where there is insufficient to satisfy all bids.
- 99 This proposal would require Shippers who may be unwilling to bid in pre-substitution QSEC auctions to decide, on the basis of published incremental data, whether to make a commitment. The commitment would be to buy the capacity and would be at a minimum of reserve price for the ASEP and quantity involved. This option would, therefore, require a much greater User commitment than the Mechanical or Option Approaches. The relative cost of capacity for selected ASEPs is shown in the table below (a more detailed example is given in the workshop 8 presentation).

ASEP	Capacity Protected GWh/D (TBE forecast – sold)	Cost of Protecting Capacity up to TBE Forecast Level.		
		Mechanical Approach	Option Approach (may be refunded)	Two-Stage Auction
Teesside	175	Nil	£511,000	£1,325,406
St Fergus	800	Nil	£2,336,000	£27,594,000
Bacton	593	Nil	£1,731,560	£4,545,345

- 100 Potentially this proposal allows Shippers to “wait and see” and to act only if incremental capacity release is triggered. If there are no signals then they would not need to make any commitment. Conversely, if there is an incremental signal Shippers would have to make a judgement on whether the substitution methodology would impact on “their” ASEP. This judgement may need to include as assessment of whether other Shippers would buy capacity at other ASEPs in stage 2.
- 101 As discussed above, the Two-Stage Auction approach allows Users to respond to incremental signals by buying capacity that they want to protect from substitution. National Grid believes that this approach needs to be applied to single (new) ASEP auctions as well as regular QSEC auctions. Hence all single ASEP auctions would be followed by a stage 2 auction allowing sale of existing capacity at all ASEPs.
- 102 National Grid’s initial assessment is that existing functionality on Gemini could be used to run the Two-Stage Auction. Stage 1 would use existing QSEC functionality and stage 2 would use AMSEC functionality. Using AMSEC functionality would prevent incremental capacity requests in stage 2 and would allow capacity allocations to be frozen at the end of each stage 2 window.
- 103 A potential problem with the Two-Stage Auction is in the timeline for undertaking the auction. The timeline below shows how the auction may be run in March 2010.



- 104 As drafted the auction can be completed within the month with three days spare. However, this requires a reduction in the number of stage 1 auction rounds from 10 to 5 and gives Shippers a little over a week to review their position and confirm their stage 2 bidding strategy (it is expected that Shippers will have considered, and gained appropriate internal governance for, stage 2 bids in advance of stage 1).
- 105 This timeline is further complicated by proposals for increased User security requirements. UNC modification proposal 0246 and variants (Quarterly NTS Entry Capacity User Commitment) require a free day after each bid window for a review of capacity bids and assessment against Shippers’ security. If implemented the above



timeline would need to be reviewed and activities curtailed, e.g. less stage 1 windows, shorter period between publication of stage 1 results and running stage 2.

106 National Grid would welcome views on whether, and how, the Two-Stage Auction should be used in the substitution methodology; specifically:

- x. **Do respondents prefer the Two-Stage Auction over the Mechanical and Option Approaches? Why / why not?**
- y. **What features of the Two-Stage Auction do respondents like / dislike?**
- z. **Bearing in mind the substitution objectives, do respondents believe that it is appropriate that capacity can only be protected from substitution if the Shipper makes a commitment to buy the capacity?**
- aa. **Do respondents consider the timeline to be an issue, e.g. would five (or less) stage 1 auction bid windows create a problem?**
- bb. **Bearing in mind the level of commitment required, do respondents think that this proposal would encourage Shippers to obtain capacity for a discontinuous quarter (see Section 7.1)? If so, is this a problem?**

## 7. Additional Issues for Consideration

### 7.1. Single Quarter Problem

107 Where capacity at a potential donor ASEP is suitable for substitution to another ASEP other than that capacity has been allocated at the donor ASEP for a single quarter, potentially many years away, National Grid would invest for incremental capacity at the recipient ASEP (i.e. not allow the substitution).

108 This issue could be used by some Users to protect from substitution capacity at ASEPs that they have previously obtained in short and medium-term auctions or may want to buy for a potential new development. To do this, Users could buy a single quarter's capacity to protect their position. This could undermine the intent of the substitution obligation. The cost to Users to do this at selected ASEPs is shown below.

ASEP	Reserve Price p/kWh/D	Cost for 10 mcmd for single quarter
St Fergus	0.0378	£3,725,190
Teesside	0.0083	£817,965
Bacton	0.0084	£827,820
Isle of Grain	0.0006	£59,130
Burton Pt	0.0001	£9,855
Barrow	0.0070	£689,850
Theddlethorpe	0.0082	£808,110
Hatfield Moor	0.0028	£275,940
Avonmouth	0.0001	£9,855

109 The single quarter issue is only relevant where Shippers are concerned that capacity that they will or may need in the future is likely to be substituted away. Hence its importance depends on the substitution methodology finally employed by National Grid.

110 Assuming sold capacity is less than future requirements, and TBE levels accurately reflect requirements, the above costs can be compared to the costs to protect capacity from substitution for the three options in Section 6 thereby giving an indication as to whether there is a genuine problem.

111 The costs in the table above are the same as would be required in the Two-Stage Auction, although the Two-Stage Auction would make such purchases only necessary where stage 1 incremental signals are observed. The comparable cost for the Mechanical Approach is zero for all ASEPs and £315,360 for all ASEPs with the Option Approach.

112 Hence single quarter bookings should only be an attractive proposition to Shippers at ASEPs where:

- There is a low reserve price and if the Option Approach is implemented; or
- TBE forecasts are perceived to be low and the Mechanical Approach is implemented; or
- The Base Methodology or Two-Stage Auction is implemented and Shippers make the minimum booking necessary.

- 113 The extent of any issue will also be dependant upon Shipper attitudes. Whilst the single quarter issue has been identified at various workshops a satisfactory solution has not been. Consensus has been in favour of taking no action and seeing if there is a problem when substitution is applied, in which case it might be possible to manage any problems retrospectively through anti-competition obligations in Shipper Licences.
- 114 National Grid put forward a further option in workshop 8 that “discontinuous single quarter bookings” should be prohibited. Hence Shipper bids would be rejected where at least one quarter in each of the two preceding or following years does not equal or exceed the quantity wanted. Workshop 8 presentation gives an example of the additional cost impact of this approach.
- 115 Any rules to prohibit single quarter bookings are likely to require a major system change as well as a UNC modification.
- 116 Alternative solutions that have previously been suggested, but not developed, include:
- Capacity substitution could be time bound. As substitution is intended to minimise investment and encourage longer term capacity booking National Grid has taken the view that capacity substitutions are permanent (unless subject to a future substitution). Putting a time limit on substitution could result in the User being required to give two signals for the same incremental capacity, initially satisfied by substitution and again at a later date when investment is required.
  - Facilitation of a distant, short duration, capacity surrender mechanism. This would require careful development to avoid Users buying capacity with a view to surrendering. However, unless surrendering becomes compulsory in defined circumstances then this would not provide a complete solution.
- 117 National Grid would welcome views on the single quarter issue. Specifically:
- cc. **Do respondents believe that single quarter bookings present a problem that requires specific rules to prevent them?**
  - dd. **Would single quarter bookings only be a problem with a specific substitution methodology, if so which?**
  - ee. **What is the preferred action, if any, to prevent single quarter bookings?**

## 7.2. Partial Substitution

- 118 One of the substitution objectives is to ensure that substitution minimises costs associated with funded incremental obligated entry capacity. Hence when National Grid is proposing to release incremental entry capacity it will satisfy the need for incremental capacity through substitution in preference to investment in new infrastructure or commercial arrangements. In the absence of substitution National Grid will receive an increase in allowed revenue, in accordance with the Licence, when releasing and allocating incremental capacity.
- 119 National Grid’s proposals for the release of incremental entry capacity are submitted to Ofgem and may be vetoed if National Grid has not followed the IECR when determining quantities to be released. National Grid will also be required to identify in its incremental capacity release proposals which increment is released as a result of substitution and which is due to funding. The Licence has extended Ofgem’s role such that National Grid’s substitution / funding proposals can be vetoed if the Entry Capacity Substitution methodology has not been followed.

- 120 Where an incremental signal can be fully satisfied by substitution National Grid would not seek funding. Conversely, where capacity is proposed to be fully provided through investment or contractual arrangements funding will be expected. However, where substitution can only meet part of an incremental capacity release at specific ASEPs problems may arise.
- 121 Licence revenue drivers are not a single value per unit of capacity. Different values apply for different tranches of capacity release. So, in the case of partial substitution, would National Grid claim funding based on the last element of capacity release or the first? Or a weighted average?
- 122 When a partial investment solution is identified the investment project will be optimised to maintain an economic and efficient solution. This may involve extending a new pipeline to reach an appropriate connection point or increase pipeline diameter to a standard size. This upward optimisation may create additional capacity. In this situation it may be appropriate to allow the creation of “spare” capacity or to pare back an element of substitution so that investment and substitution equals, in aggregate, the incremental capacity release.
- 123 It is National Grid’s contention that partial substitution presents complexity and loss of transparency that is not warranted at this time. Following early experience of substitution this could be reviewed and the methodology hardened.
- 124 National Grid would welcome views on partial substitution. Specifically:
- ff. **Do respondents believe that the substitution methodology should only allow substitution to proceed where an incremental signal can be met fully from substitution?**
  - gg. **Should partial substitution be allowed for specific options outlined in Section 6?**
  - hh. **Should partial substitution be considered as an element of a soft-landing to be introduced at a later date?**

### 7.3. Entry Capacity Zones

- 125 Some ASEPs on the NTS have a high degree of interactivity. This is normally where gas flows through common sections of the NTS. Hence National Grid has incorporated entry zones into the methodology for determination of donor ASEPs to be used for substitution. National Grid expects exchange rates between any within zone ASEPs to be of a similar level. In addition it is likely that exchange rates will be lower (but not necessarily at 1:1) than across zonal boundaries.
- 126 The first proposed use of zones in the methodology would be to assess available capacity at each within zone donor ASEPs before considering external donor ASEPs. This should ensure that available capacity is used in the most economic manner. However, it does mean that some distant ASEPs are considered in preference to nearer ASEPs. This is particularly evident in the Northern Zone where St Fergus would be considered as a donor ASEP for incremental signals at Barrow and Teesside before closer ASEPs further South.
- 127 Secondly, when assessing within zone substitutions all donor ASEPs will be considered together. Whilst this is a deviation away from the preferred selection criteria based on increasing pipeline distance from the recipient ASEP it will ensure an element of sharing of the impact across several donor ASEPs. However, this benefit will only be apparent where there is more than one potential donor ASEP within a zone and where the

incremental signal is not so great as to take away all available capacity from all within zone donor ASEPs.

- 128 Entry zones are defined in an annex to the draft methodology statements included as separate documents to this consultation.
- 129 National Grid would welcome views on the use of entry capacity zones in the substitution methodology, specifically:
- ii. **Do respondents believe that the use of entry zones in the substitution methodology is appropriate? or**
  - jj. **Should the methodology be applied purely on nearest donor ASEP?**
  - kk. **Do respondents favour pro-rating within zone?**

#### 7.4. New ASEPs

- 130 In respect of any new ASEPs National Grid may hold a separate QSEC auction solely for Users to signal their requirements in respect of that ASEP. Subject to completion of any necessary Licence changes this auction could be held throughout the year.
- 131 These single ASEP auctions will be subject to the substitution rules. Indeed, as these auctions trigger the release of incremental capacity they are more likely to trigger substitution than regular QSEC auctions.
- 132 National Grid suggests that the implementation of entry capacity substitution will not apply to single ASEP auctions until at least one regular QSEC auction has been held with substitution applying unless the Two-Stage Auction is used.
- 133 This transitional rule will ensure that Shippers at all ASEPs will be able to buy capacity (or an option) to protect it from substitution before it becomes vulnerable through an ad-hoc QSEC auction. [It should be noted that this rule would be redundant if the current timetable for introducing substitution is adhered to and UNC mod 230 or 230AV is implemented.]

#### 7.5. Soft Landing

- 134 Other sections of this report focus on how the entry capacity substitution should be applied. They seek views on what the “enduring” methodology should be. However, at workshop 5 Ofgem suggested that a “soft-landing” might be appropriate for the introduction of substitution. This would allow controls to be placed in the methodology so that the effect of substitution could be reviewed and assessed whilst the impacts are limited.
- 135 However, whilst the effect of the substitution methodology is unknown these controls may act to prevent any substitution being undertaken at all. Setting the parameters for a soft-landing will, therefore, be a difficult judgement to make.
- 136 National Grid has an obligation to review the substitution methodology on an annual basis and to consult on proposed changes. These reviews would consider the success of the substitution methodology and whether any rules should be relaxed or tightened. Hence any transitional rules applied for a soft-landing can be removed, relaxed or extended at these times. However, National Grid would welcome views on how long transitional rules would be expected to apply.

137 An exchange rate cap has been mentioned as a potential soft-landing parameter. A low cap could be set for year 1 which could be increased for year 2 and in later years.

138 Other soft-landing approaches could include:

- Limiting substitution to within zone only for year 1.
- Gradually reducing the protected level in the Mechanical Approach; e.g. protecting only 90% TBE/Deliverability level in year 2.

139 National Grid would appreciate views on:

- II. **Whether respondents favour a soft-landing?**
- mm. **If so, what parameter(s) should be used?**
- nn. **Over what period should a soft-landing apply?**
- oo. **Are there any other ways that a soft-landing could be introduced?**
- pp. **Should a transitional rule be included to ensure that substitution is introduced first to a regular QSEC auction?**

## 7.6. Reserve Price Discounts

140 The issue of reserve price discounts was considered at an early stage of the development of the substitution methodology and has been excluded from current proposals. However, as understanding of substitution has increased views on the issue may have changed or become more firm and the topic was raised again during workshop 8. National Grid is not proposing to make any changes to reserve price discounts as part of the substitution methodology but they should not be dismissed as future developments. The issue is briefly described below. More detail can be found in the February and July 2008 consultations.

141 National Grid is obliged to undertake reasonable endeavours to make available all obligated capacity in at least one clearing allocation. This has been interpreted as a requirement to have a zero reserve price for firm capacity made available within Day and this is now encoded within the UNC.

142 These discounts were the subject of a National Grid discussion paper in May 2007<sup>8</sup>. By providing a discount to reserve prices Shippers are given a disincentive to book long term capacity. This can undermine long term planning signals and, as it is contrary to the substitution objectives, provides conflicting messages to Shippers regarding their bidding behaviour.

143 This issue was discussed at the TCMF meeting on 2<sup>nd</sup> October 2008. In response to an action to provide clarity on whether the obligation referred to above could be removed from the Licence, Ofgem linked consideration of any proposals to the implementation of substitution. Hence National Grid is not taking this issue forward at this time.

- qq. **Notwithstanding the current position, National Grid would welcome views on whether proposals should be put forward to amend the Licence to facilitate a pricing structure which incentivises long term entry capacity bookings.**

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<sup>8</sup> NTS GCD 04: Revisions to NTS Entry Capacity Reserve Price Discounts which can be found on National Grid's web site at [http://www.nationalgrid.com/uk/Gas/Charges/consultations/archive\\_discussion\\_papers/](http://www.nationalgrid.com/uk/Gas/Charges/consultations/archive_discussion_papers/)

## 8. Worked Example

- 144 This section reproduces an example from workshop 8 which shows the possible effects on donor ASEPs of a release of incremental capacity at Barrow which is satisfied through substitution.
- 145 Before the QSEC auction National Grid would release certain information in addition to that already provided. This would include relative pipeline distances for each ASEP (only Barrow is shown below) and the capacity available for substitution (selected ASEPs relevant to the example are shown). For the purposes of this example the table also shows how these values are derived.

Recipient ASEP	Barrow
<b>Donor ASEPs in order</b>	Teesside*
*ASEPs within zone  Some ASEPs with zero baseline ignored.	Glenmavis*
	St Fergus*
	Partington
	Burton Point
	Theddlethorpe

ASEP	Baseline GWh/Day  A	Protected Capacity (TBE or deliverability) GWh/Day  B	Sold Capacity GWh/Day (2008 QSEC data used)  C	Capacity available for substitution.	
				Mechanical Approach  D	Two-Stage Auction and Option Approach  E
<b>Barrow</b>	309	90	278	<b>188*</b>	<b>0</b>
<b>Teesside*</b>	476	337	162	<b>91</b>	<b>266</b>
<b>Glenmavis*</b>	99	103	0	<b>0</b>	<b>89</b>
<b>St Fergus*</b>	1671	1272	472	<b>232</b>	<b>1032</b>
<b>Partington</b>	215	224	22	<b>0</b>	<b>172</b>
<b>Burton Point</b>	74	11	13	<b>55*</b>	<b>53</b>
<b>Theddlethorpe</b>	611	90	20	<b>460</b>	<b>530</b>

$$D = 90\%A - B$$

$$E = 90\%A - C$$

\* The lower value based on sold quantity would be used for Burton Point (and Barrow if a donor ASEP) under all options.

- 146 Assume an incremental entry capacity request for 215 GWh/d is received at Barrow which passes the IECR NPV test. National Grid would propose releasing incremental capacity and would investigate opportunities for substitution based on the methodology implemented.
- 147 Network analysis would be undertaken to determine how much the obligated capacity needs to be reduced by at donor ASEPs in order to release the incremental capacity at Barrow. In this example actual analysis has not been undertaken. Two sets of results are provided for each methodology.



- The first assumes an exchange rate of 1:1 is achieved (i.e. reducing obligated capacity by one unit at the donor ASEP creates one unit at the recipient ASEP);
- The second assumes a higher exchange rate. The higher exchange rates are upper limits that National Grid has used for demonstration purposes and vary for each approach.

148 In the absence of substitution National Grid would receive additional funding of £6.3m in respect of the incremental capacity release at Barrow (see paragraph 25) which would translate into increased entry commodity charges. Hence the costs and impacts detailed in the following results should be considered in the context of these potential benefits.

### 8.1. Results for Mechanical Approach

<b>Mechanical Approach Results</b>		
<b>Barrow as Recipient ASEP for 215 GWh/d.</b>		
	<b>1:1 exchange rate</b> Quantity required for substitution = 215	<b>5:1 exchange rate</b> Quantity required for substitution = 1075
<b>Donor ASEP Capacity substituted</b>	<b>Teesside - 61</b>	<b>Teesside - 91</b>
	<b>St Fergus - 154</b>	<b>St Fergus - 232</b>
	Quantity obtained by pro-rating on available capacity	<b>Burton Point - 53</b>
		<b>Theddlethorpe - 460</b>
		<b>Bacton - 117</b>
<b>Total substituted = 215 GWh/d from within zone.</b> Requirements satisfied. <b>215 GWh/d incremental signal met by substitution.</b>	<b>Max available to substitute = 953 GWh/d</b> Requirements partially satisfied. <b>191 GWh/d incremental signal met by substitution.</b> <b>24 GWh/d incremental signal met by funding.</b>	

149 The results show that for the Mechanical Approach with a 1:1 exchange rate substitution is completed within zone. However, if the actual exchange rate required is 5:1 then all available capacity in the Northern zone is used. The process continues to out of zone donor ASEPs and there is still insufficient available capacity to meet the needs for substitution to Barrow. In this case part of the incremental capacity release will be funded. If the methodology was to prevent part–substitution / part-funding solutions then the incremental capacity released at Barrow would be fully funded and no substitution would be undertaken.

150 If partial substitution was permitted (or if the incremental capacity could be achieved at Barrow with an exchange rate of 4.5:1 (953/215) then all capacity available for substitution would be substituted away from all ASEPs. This would leave the TBE forecast level or deliverability (plus 10% withheld) available for short-term auctions.

### 8.2. Results for Option Approach

151 Under the Option Approach Shippers can take out an option which will exclude capacity from substitution. Shippers will decide whether to take out an option at an ASEP based on their assessment of the risks involved; e.g. the likelihood that they will need the capacity and their perception of the potential for capacity to be substituted away.

152 In the example two scenarios are developed. In scenario A Shippers take no action to protect capacity and in scenario B options are taken out to protect capacity at St Fergus and Teesside up to TBE forecast levels. It is assumed that no options are taken out elsewhere. The options are as shown below.

ASEP	Scenario A	Scenario B	
	Do nothing	Option quantity (TBE-sold)	Option Cost
Teesside	No option taken	175 GWh/d	£511,000
St Fergus	No option taken	800 GWh/d	£2,336,000

## Option Approach Results

Barrow as recipient ASEP for 215 GWh/d

Donor ASEP Capacity substituted	Scenario A: No option		Scenario B: Option to TBE at Teesside / St Fergus	
	1:1	4:1	1:1	4:1
Teesside	41	164	47	91
Glenmavis	14	56	46	89
St Fergus	160	640	122	232
Partington	Nil	Nil	Nil	172
Burton Point	Nil	Nil	Nil	53
Theddlethorpe	Nil	Nil	Nil	223
<b>Total</b>	<b>215</b>	<b>860</b>	<b>215</b>	<b>860</b>

- 153 There are a number of features that are shown by the results for the Option Approach.
- 154 The most striking effect is that additional ASEPs become affected under the Option Approach. Protected capacity is determined by Shippers taking out options not by National Grid identifying a proxy value. Hence all ASEPs with available capacity may lose that capacity to substitution.
- 155 The value of the option is shown under the 4:1 example where limits are placed on the capacity substituted from Teesside and St Fergus. At these ASEPs the TBE value is protected for £0.5m and £2.3m respectively. These option fees would be refunded if capacity is subsequently obtained through QSEC or AMSEC auctions.
- 156 Conversely, the effect of not taking out an option is shown by the respective Shippers at Glenmavis, Partington and Burton Point where all available capacity for substitution is used.

### 8.3. Results for Two-Stage Auction

- 157 In the Two-Stage Auction Shippers could obtain capacity in stage 2 of the auction (as well as in stage 1) which would exclude that capacity from substitution. Shippers would need to decide whether to take action in stage 2 based on their assessment of the risks involved; e.g. incremental signals have been received at adjacent ASEPs and their perception of the potential for capacity to be substituted away.
- 158 In the example two scenarios are developed. In scenario A Shippers take no action to protect capacity in stage 2 and in scenario B capacity is obtained at St Fergus and Teesside up to TBE forecast levels. It is assumed that no additional capacity is obtained elsewhere. The additional capacity sold in stage 2 would be as shown below.

<b>Stage 2 bids for obligated capacity (GWh/d)</b>			
<b>ASEP</b>	<b>Scenario A</b> no further bids	<b>Scenario B</b> (bid up to TBE level)	<b>Scenario B</b> Cost for one quarter (at reserve price)
Teesside	Nil	175	£1,325,406
St Fergus	Nil	800	£27,594,000

## 2-Stage Auction Results

Barrow as Recipient ASEP – 215 GWh/d incremental

<b>Donor ASEP</b> <b>Capacity</b> <b>substituted</b>	<b>Scenario A:</b> <b>No further bids</b>		<b>Scenario B:</b> <b>Bids to TBE at Teesside/St Fergus</b>	
	<b>1:1</b>	<b>2:1</b>	<b>1:1</b>	<b>2:1</b>
Teesside	41	82	47	91
Glenmavis	14	28	47	89
St Fergus	160	320	121	232
Partington	Nil	Nil	Nil	18
<b>Total</b>	<b>215</b>	<b>430</b>	<b>215</b>	<b>430</b>

- 159 The results show that for the Two-Stage Auction there is value to be obtained in bidding in stage 2. With a 2:1 exchange rate St Fergus TBE level would be breached by substitution unless Shippers act to buy additional capacity.
- 160 Notwithstanding the single quarter issue, the cost to protect capacity, by buying up to TBE level in one quarter, would be £1.3m and £27.6m for Teesside and St Fergus respectively.
- 161 If the actual exchange rate obtained is as low as 1:1 then sufficient capacity can be obtained for substitution to Barrow without breaching the TBE level. In this case action in stage 2 would not have been necessary. However, Shippers would have no certainty of the actual exchange rate in advance of the auction.

## 9. Summary

162 Section 2, and in particular paragraph 27 provides details of the “Base Methodology”. Sections 4 to 6 develop this into a range of options and discuss a variety of issues. However, a number of steps in the Base Methodology have not been discussed in this paper as they have previously been consulted upon. These can be found in the draft methodology statements.

163 Notwithstanding this National Grid would welcome further comments on the Base Methodology:

**rr. Do respondents have any concerns or comments regarding aspects of the Base Methodology not discussed above?**

164 As discussed in paragraph 31 there are three types of industry player that might be adversely affected by substitution (market participants may be aware of others). It is important therefore that any proposed methodology is measured in terms of its effect on these parties as well as the three criteria given in paragraph 42 and used to score the original eleven options.

165 Respondents should draw their own conclusions from the information presented in this report and the workshops. However, National Grid has produced the table below to give a high level overview of each of the developed options against the above criteria.

Methodology	Provides benefit of substitution	Ease of implementation	Risk mitigation		
			Long term projects	Short term players	Marginal projects
<b>Base Methodology</b>	Maximum	Simple	None	None	None
<b>Mechanical Approach</b>	Low	Simple <sup>9</sup>	Yes	Partial	Yes
<b>Option Approach</b>	High	Moderate	Yes	Partial	Yes
<b>Two-Stage Auction</b>	High	Complex	Partial	None	None

166 National Grid's has developed a full range of options in conjunction with the industry. We believe that all three options are consistent with Licence obligations, and in particular the substitution obligation. Based on the feedback provided by market participants and discussions with Ofgem, we will submit an Entry Capacity Substitution Methodology Statement to Ofgem following formal consultation, by 6<sup>th</sup> September 2009. It is anticipated that substitution will be applied from May 2010.

<sup>9</sup> Provided suitable criteria for protected capacity can be identified.

## 10. Questions for Discussion

### 10.1. Responses

- 167 National Grid would appreciate views from industry participants on the issues discussed in the previous sections, particularly if alternative solutions can be identified. Specifically National Grid seeks opinions on the questions raised which are reproduced below for convenience.
- 168 Respondents should not limit their comments to the specific questions. National Grid encourages respondents to raise any additional issues that require consideration prior to implementation of a substitution methodology.
- 169 Responses should be sent to National Grid to arrive no later than 17:00 on 5<sup>th</sup> June 2009.

They should be sent to:  
Andrew Fox  
National Grid  
Transmission Commercial  
NG House  
Warwick Technology Park  
Gallows Hill  
Warwick  
CV34 6DA

Alternatively they can be sent by e-mail to:  
[box.transmissioncapacityandcharging@uk.ngrid.com](mailto:box.transmissioncapacityandcharging@uk.ngrid.com).  
And copied to [andrew.fox@uk.ngrid.com](mailto:andrew.fox@uk.ngrid.com)

**Please include a “read receipt” to confirm delivery.**

### 10.2. Consultation Questions

Paragraph 28

- a. Are there any other factors that National Grid should include in the Base Methodology?
- b. Are there any aspects of the Base Methodology that should be excluded or amended?

Paragraph 52

- c. Should the substitution methodology use an exchange rate cap to limit the impact of substitution on donor ASEPs?
- d. Would the intended benefits of an exchange rate cap be better achieved through implementation of any of the options (Mechanical Approach, Option Approach or Two-Stage Auction) discussed in Section 6?

If an exchange rate cap is used:

- e. At what level should the exchange rate cap be set? Respondents may consider that a different value is appropriate depending upon other factors of the methodology, e.g. whether any of the options discussed in Section 6 is implemented.
- f. Notwithstanding that National Grid is obliged to review the substitution methodology on an annual basis, should the exchange rate cap be set at a low level in the expectation of increasing in future years?

## Paragraph 59

- g. Do respondents consider that an economic test is appropriate or necessary for the substitution methodology?
- h. Would an economic test add unnecessary complexity to the process?
- i. What benefits, if any, would an economic test provide?

If an economic test was introduced

- j. What parameters should be used for the donor and recipient ASEP values?
- k. Are there any alternative tests that should be considered?

## Paragraph 80

- l. Do respondents prefer the Mechanical Approach over the Option Approach and/or Two-Stage Auction? Why / why not?
- m. What features of the Mechanical Approach do respondents like / dislike; e.g. simplicity, lack of User commitment?
- n. What criteria should National Grid use to determine the level of protected capacity at each category of ASEP (e.g. beach terminal, storage etc)?
- o. Is the use of deliverability, or similar, such that substitution is limited to major beach terminals acceptable? Would this be undue discrimination?
- p. Are there alternative sources of data to the TBE, deliverability that would be reliable, transparent and readily available?
- q. How could a soft-landing be applied to the Mechanical Approach?

## Paragraph 94

- r. Do respondents prefer the Option Approach over the Mechanical Approach and/or Two-Stage Auction? Why / why not?
- s. What features of the Option Approach do respondents like / dislike?
- t. Bearing in mind the substitution objectives do respondents believe that it is appropriate that capacity can be protected from substitution with only a relatively small commitment from the User?
- u. Should the Option Approach be made available to non-Users? If so how should it be applied?
- v. Is the option fee set correctly?
  - i. *Is it correct to have the same fee for all ASEPs?*
  - ii. *Are the minimum reserve price and 8 year period appropriate parameters for setting the option fee; i.e. is a fee set at approximately £300,000 for 10 mcmd correct?*
  - iii. *Are refunds in the circumstances described appropriate?*
- w. Should the option fees and refunds be dealt with through TO charges? If not, how should they be accounted for?

## Paragraph 106

- x. Do respondents prefer the Two-Stage Auction over the Mechanical and Option Approaches? Why / why not?
- y. What features of the Two-Stage Auction do respondents like / dislike?
- z. Bearing in mind the substitution objectives, do respondents believe that it is appropriate that capacity can only be protected from substitution if the Shipper makes a commitment to buy the capacity?
- aa. Do respondents consider the timeline to be an issue, e.g. would five (or less) stage 1 auction bid windows create a problem?
- bb. Bearing in mind the level of commitment required, do respondents think that this proposal would encourage Shippers to obtain capacity for a discontinuous quarter (see section 7.1)? If so, is this a problem?

## Paragraph 117

- cc. Do respondents believe that single quarter bookings present a problem that requires specific rules to prevent them?
- dd. Would single quarter bookings only be a problem with a specific substitution methodology, if so which?
- ee. What is the preferred action, if any, to prevent single quarter bookings?

## Paragraph 124

- ff. Do respondents believe that the substitution methodology should only allow substitution to proceed where an incremental signal can be met fully from substitution?
- gg. Should partial substitution be allowed for specific options outlined in Section 6?
- hh. Should partial substitution be considered as an element of a soft-landing to be introduced at a later date?

## Paragraph 129

- ii. Do respondents believe that the use of entry zones in the substitution methodology is appropriate? or
- jj. Should the methodology be applied purely on nearest donor ASEP?
- kk. Do respondents favour pro-rating within zone?

## Paragraph 139

- ll. Whether respondents favour a soft-landing?
- mm. If so, what parameter(s) should be used?
- nn. Over what period should a soft-landing apply?
- oo. Are there any other ways that a soft-landing could be introduced?
- pp. Should a transitional rule be included to ensure that substitution is introduced first to a regular QSEC auction?

## Paragraph 143

- qq. Notwithstanding the current position, National Grid would welcome views on whether proposals should be put forward to amend the Licence to facilitate a pricing structure which incentivises long term entry capacity bookings.

## Paragraph 163

- rr. Do respondents have any concerns or comments regarding aspects of the Base Methodology not discussed above?