Adjusting National Grid's revenue allowances when large new entry points connect to the gas transmission system

Document Type: Consultation

Ref: 50/06

Date of Publication: 29 March 2006

Overview:

This consultation document seeks views on how Ofgem should set revenue allowances for additional work that National Grid Gas (NGG) might need to undertake in order to accommodate large new entry points onto the high-pressure gas transmission network. These revenue allowances, which are already set for existing entry points, are known as Unit Cost Allowances (UCAs).

The document consults on the appropriate way for Ofgem to estimate (using network modelling tools) the relevant costs for each particular new entry point. It also invites views on the other information we should have regard to, such as the values of UCAs at existing entry points, in setting new UCAs. The consultation covers the setting of UCAs for capacity sold at large new entry points before April 2007. Revised arrangements (not consulted on here) for adjusting NGG's revenues if it provides extra capacity on the network will apply thereafter.

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Deadline for Response: 28 April 2006

Target Audience: Network licensees, shippers, terminal developers, investors, consumer representatives, and any other stakeholders and interested parties

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Office of Gas and Electricity Markets
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Context

We consulted on the setting of Unit Cost Allowances (UCAs) for new entry points on the high-pressure gas transmission network in May 2005. In July 2005, the Authority decided to set UCAs for small new entry points with reference to the UCAs for existing entry points, and to consult on the appropriate approach for setting UCAs for large new entry points in Q1 2006.

Separate from this consultation, Ofgem is also reviewing the revenue allowances of National Grid Gas (NGG) as part of the Transmission Price Control Review (TPCR) process, with revised revenue allowances for NGG to apply from April 2007 onwards. A second consultation document was published in December 2005, and a third consultation document is due for publication at the end of March 2006.

UCAs are currently also being used by NGG to set reserve prices (ie, minimum prices) in entry capacity auctions in which shippers can book future gas transmission capacity. Following an open letter from Ofgem in December 2005, NGG has set up a separate industry forum, the Gas Transmission Charging Methodology Forum (TCMF), to develop revised transmission charging arrangements to apply from April 2007 onwards. This includes considering how reserve prices in entry capacity auctions are set.

This consultation therefore covers the setting of UCAs for capacity sold at large new entry points before April 2007 only. Revised arrangements for setting UCAs for large new entry points (both as revenue allowances and as reserve prices) are likely to apply thereafter.

Associated Documents

- Ofgem (May 2005), Gas transmission - new NTS entry points, reserve prices in auctions and unit cost allowances (UCAs), Consultation document (Ref. No. 139/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11541_13905.pdf
- Ofgem (August 2005), Section 23 notice to modify Transco's Gas Transporter licence, Explanatory note to accompany proposals for new entry points to Transco's National Transmission System (Ref. No. 188/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/12157_188_05.pdf
- Ofgem (August 2005), Notice under section 23(3) of the Gas Act 1986 (Ref. No. 196/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/12250_196_05.pdf
- Ofgem (August 2005), Direction under section 23(3) of the Gas Act 1986 (Ref. No. 212/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/12489_212_05.pdf
- Ofgem (December 2005), Open letter, Development of a charging methodology and charging model for gas entry/exit reserve prices (Ref. No. 262/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13073_262_05.pdf
- Ofgem (December 2005), Transmission Price Control Review, Second Consultation (Ref. No. 277/05) http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/14161_27705.pdf

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Summary

Where a new entry point is being created on the gas transmission network, eg where a new gas storage facility is built and connected to the network, Ofgem sets a revenue allowance for National Grid Gas (NGG) for the network reinforcement required in order to accommodate gas flowing in from the new entry point. The revenue allowance is based on a "Unit Cost Allowance", or "UCA". This consultation seeks views on how Ofgem should set these allowances for large new entry points.

Ofgem consulted on the setting of UCAs for new entry points previously, in 2005, and concluded that UCAs for smaller new entry points could be set by reference to UCAs at nearby existing entry points. However, we concluded that this approach would not be suitable for larger new entry points.

NGG sells entry capacity through auctions at each entry point. The auctions use a reserve (ie minimum) price and allow parties to bid for capacity for a period of up to fifteen years. Currently, NGG uses the UCAs set by Ofgem as the reserve prices in the auctions. This, however, is subject to review by NGG and might change from 2007 onwards.

It should also be noted that the whole package of revenue allowances for NGG (including any existing UCAs) is currently under review as part of the Transmission Price Control Review (TPCR) process. The TPCR proposals will take effect in April 2007. Before then, the UCAs set by Ofgem (including any new ones set in the light of this consultation) are likely to continue to be used by NGG as reserve prices in the auctions.

1. Introduction

Question Box

There are no specific questions raised by this section.

Purpose of document

1.1. The main purpose of this consultation document is to seek views on how Ofgem should set UCAs for large new entry points.

1.2. It describes the key issues surrounding the modelling work that is required to estimate the associated costs of providing transmission capacity at large new entry points, and invites views on the various options raised. We also invite views on what other information we might need to take account of in setting new UCAs.

1.3. Once the consultation is closed, we will develop a preferred approach to setting UCAs for large new entry points, given our principal objective and other statutory duties, and taking into account the responses to this consultation.

Overview of document

1.4. This document is structured as follows:

- Chapter 2 describes the role of UCAs under the current regime and briefly reviews past and current Ofgem consultations and other relevant work in this area.
- Chapter 3 provides an overview of the issues on which we are consulting (ie, network modelling and any other relevant information) and explains the focus on estimating costs for UCA setting purposes.
- Chapter 4 explains the network modelling required to determine UCAs for large new entry points, and invites views on various modelling options.
- Chapter 5 discusses other potentially relevant factors that may need to be taken into account for the purpose of setting UCAs for large new entry points, and invites views on those factors.

1.5. There are also several appendices:

- Appendix 1 explains how to respond to the consultation and provides a summary of all the consultation questions.
- Appendix 2 sets out the Authority's powers and duties.
- Appendix 3 describes the current NTS entry capacity regime (regulatory and commercial arrangements) in some more detail, to set in context the role of UCAs under this regime.
- Appendix 4 is a glossary of key terms.
- Appendix 5 is a feedback questionnaire on the consultation process itself.

2. Background

Question Box

There are no specific questions raised by this section.

2.1. Gas transmission is a monopoly activity and the revenue that NGG earns from the use of the NTS (National Transmission System) is price controlled. Following the 2001 review of NGG's price control and incentive arrangements, significant changes were introduced to the regulation of NTS entry capacity. These included the introduction of long-term auction arrangements and the setting of entry capacity baselines and Unit Cost Allowances (or UCAs).

2.2. This background chapter discusses:

- the role of UCAs under the current price control and access regime
- the May 2005 UCA consultation
- the July 2005 Authority decision
- large versus small flow increments at entry points, and
- the Transmission Price Control Review (TPCR) and the Gas Transmission Charging Methodology Forum (TCMF).

Role of UCAs under current price control and access regime

2.3. UCAs are estimates of the unit costs of providing long-run incremental capacity at an entry point on the NTS. They perform a dual role under the current entry capacity regime. First, they affect the amount of additional revenue National Grid Gas (NGG) is allowed to earn if it provides additional capacity at an existing entry point, or if it makes available capacity at a new entry point. Second, they are used by NGG as the basis for setting reserve prices that apply in various auctions where gas shippers purchase rights to future transmission capacity at entry points.

2.4. UCAs are set by Ofgem and are included in NGG's Gas Transporter Licence in respect of the NTS. Ofgem is currently reviewing the price control for NGG (and the other transmission licensees). As a result, new approaches for setting UCAs may apply from April 2007 onwards, both for revenue driver and reserve price purposes. The process of setting reserve prices for entry capacity auctions is also under review by NGG as part of its Gas Transmission Charging Methodology Forum (TCMF) work stream.

2.5. In July 2005, we decided to consult on the appropriate approach for setting Unit Cost Allowances (UCAs) for large new entry points on the National Transmission System (NTS) in Q1 2006.

2.6. We have received several formal requests to set UCAs for large new entry points which are to be set prior to April 2007. This document consults on the appropriate modelling approach for setting UCAs for these large new entry points (and other potential new entry points for which Ofgem may receive formal UCA requests in the near future), and on any other relevant information that we may need to take into account when setting UCAs for large new entry points.

May 2005 UCA consultation

2.7. Ofgem consulted on the appropriate approach to setting UCAs for new entry points in May 2005.[1] Copies of the responses to the consultation can be found on Ofgem's website. Since its previous consultation on the setting of a UCA for Garton in November 2003, several issues had arisen. Most notably, it had become clear that there had been significant changes in gas flow patterns, which implied changes in the long-run incremental costs and large variations between new UCAs compared with existing UCAs. It had also become clear that there had been an increase in the costs of network reinforcement. For instance, the price of steel had increased significantly and the contract market had tightened.

2.8. Ofgem therefore consulted on two specific options:

- Option 1: Calculate UCAs for new entry points on the basis of a new methodology and recalculate existing UCAs on the same basis.
- Option 2: "Cap" the UCAs for new entry points to the level of the UCAs at nearby existing entry points, leave existing UCAs unchanged, and review all UCAs under the next price control review.

2.9. In response to the consultation, there was general support for the view that UCAs for new entry points should be set on a cost-reflective basis, but it was pointed out that this should be balanced with the need for certainty in the market. Questions were raised with respect to some technical aspects of the modelling (in particular, the assumptions being made on changes in gas demand to accommodate the extra supply of gas coming through the new entry point). Also, some developers argued that storage sites should be treated as "strategic investment" and hence that storage operators should not face the full cost (however estimated) of network reinforcement.

July 2005 Authority decision

2.10. In July 2005, the Authority decided, on the basis of its principal objective and other statutory duties and after careful consideration of the responses to the May 2005 consultation document, that:

- the interests of consumers would be best protected if UCAs for smaller new entry points were to be set by reference to UCAs at nearby entry points
- existing UCAs should be left unchanged and reviewed as part of the next price control review, and
- further options should be developed to set UCAs for larger new entry points.

2.11. More specifically, we decided to set UCAs for small new entry points for the remainder of this price control period with reference to the UCAs of the three nearest existing entry points. However, we also decided that such an approach would not be appropriate for large new entry points. The UCAs set at the time of the last price control review were based on the costs of transporting relatively small increments of gas (ie, 6 mcm/d). Larger increments are expected to cause significantly different costs and therefore UCAs for large new entry points might not be sufficiently accurate if they were based on UCAs for existing entry points. We therefore decided that it would be appropriate to consult further on the

[1] Ofgem (May 2005), Gas transmission - new NTS entry points, reserve prices in auctions and unit cost allowances (UCAs), Consultation document (Ref. No. 139/05).

treatment of large entry points, as this would give Ofgem and stakeholders the opportunity to consider modelling issues and other relevant information.

Large versus small flow increments at entry points

2.12. As discussed above, the size of the increment can have a significant impact on the unit cost of providing new capacity. Depending on the location of the new entry points, these costs might be higher or lower than for smaller increments. For example, there might be situations were there are significant economies of scale resulting in lower unit costs. On the other hand, in congested areas, UCAs for large new entry points might be higher than those of small nearby entry points due to the "lumpiness" of the new investment.

2.13. This suggests that the underlying analysis for UCAs calculated at the last price control review is unlikely to be robust for new entry points with anticipated flow rates significantly larger than 6 mcm/d.

2.14. If we underestimate UCAs for large new entry points, there are various risks, including:

- that NGG receives an insufficient revenue allowance for the required network reinforcement costs. This could potentially result in a re-opener of the price control (which may distort NGG's incentives for efficient expenditure over the full duration of the price control period).

- that as a result of the current link between UCAs and charges in entry capacity auctions (explained in Appendix 3), shippers may face inappropriate pricing signals and purchase capacity rights for more gas at an entry point than they otherwise would. This could subsequently lead to overinvestment in network assets and, possibly, stranded network assets in future, which consumers may end up bearing a significant proportion of.

- that as a result of the link between UCAs and the NPV test (also explained in Appendix 3), new entrants/shippers may not be facing an appropriate proportion of the actual network reinforcement costs associated with a certain incremental flow rate. The residual costs (if they are deemed to be efficiently incurred by Ofgem) would enter the Regulatory Asset Value at a subsequent stage and hence consumers would bear these costs. If any of the network assets become stranded, consumers may then end up bearing a disproportionally large part of the associated costs.

2.15. Any stranded asset costs as mentioned above could be relatively high because of the potentially high costs of network reinforcement associated with large new entry points.

2.16. If we overestimate UCAs for large new entry points, again there are various risks, including:

- that NGG temporarily receives an overly generous revenue allowance, to the detriment of consumers;

- that there is underinvestment in network assets, as shippers purchase capacity rights for less gas than they otherwise would, and this could result in the network becoming inefficiently constrained, and

- that overestimated UCAs may (inefficiently) deter new entrants through the link with reserve prices in the auctions.

2.17. It is therefore important, all other things being equal and particularly given the scale of the new projects, that UCAs are set at a level reflecting the actual costs of network reinforcement, so that NGG receives an appropriate revenue allowance, and shippers and developers receive appropriate pricing and investment signals.

TPCR and Gas TCMF

2.18. Ofgem is also currently undertaking a Transmission Price Control Review (TPCR), which will culminate in final proposals for new controls and incentive arrangements at the end of 2006, with an implementation date of 1 April 2007. As part of the TPCR's Second Consultation (December 2005, 277/05), Ofgem has been consulting on the role of charging within the current price control framework. In particular, we are considering whether it might be appropriate to de-link the role which UCAs play as revenue driver from the role they play in determining reserve prices.

2.19. The process of setting reserve prices for entry capacity auctions (and other transmission charges) is currently under review as part of NGG's Gas Transmission Charging Methodology Forum (TCMF) work stream. The Forum was set up following Ofgem's open letter of 2 December 2005 (262/05). It is working towards a new methodology for setting reserve prices (and other transmission charges), to be accompanied by a publicly available charging model. The aim is for this new methodology to apply from 1 April 2007 onwards.

2.20. The modelling work discussed in this consultation document would therefore only apply to UCAs for capacity bought at large new NTS entry points for the remainder of this price control period, ie until April 2007. However, it should be noted that the capacity auctions enable shippers to buy capacity for up to 15 years.

3. Overview of issues for consultation

Question box

Question 1: Do you agree with the proposed scope of this consultation as set out in this chapter, ie covering network modelling issues and the identification of other potentially relevant information?
Question 2: Do you agree with the proposed focus on estimating actual long-run incremental costs, for the purpose of setting UCAs for large new entry points?

3.1. This chapter provides an overview of the issues on which we are consulting. It explains why in principle it is important that UCAs reflect the underlying costs of providing incremental entry capacity. It also sets out two key stages in the process of setting UCAs for large new entry points:

- network modelling, and
- consideration of other potentially relevant factors.

Further details on these two stages are provided in chapters 4 and 5 respectively.

UCAs and cost-reflectivity

3.2. Under the current entry regime, UCAs act as "de facto" revenue drivers for NGG, via the entry capacity investment incentive (as explained in Appendix 3). In other words, they (indirectly) determine the additional revenue that NGG is allowed to earn when a new entry point is added to the NTS. This is the principal function of UCAs under the current licensing regime for gas transmission.

3.3. A secondary function of UCAs derives from the fact that NGG currently sets reserve prices in various long-term and medium-term auctions based on the UCAs (as explained in Appendix 3). However, this is not a licence obligation on NGG and (in principle) NGG could set reserve prices on a different basis, as long as they are consistent with the high-level charging objectives in its licence.

3.4. Given the dual roles of UCAs, we consider it important that any future UCAs for large new entry points are broadly cost-reflective.

- In their role as revenue drivers, the purpose of the UCAs is to provide NGG with a reasonable additional revenue allowance, ie one that is neither inappropriately high nor inappropriately low. In other words, the additional revenue allowance should aim to provide NGG with a reasonable prospect of recovering the network reinforcement costs associated with accommodating the new entry point.
- In their role as reserve prices in entry capacity auctions, it is also important that UCAs are cost-reflective, since the reserve prices should provide appropriate locational signals to shippers and terminal developers as to the relative cost of booking capacity at different points on the network.

3.5. Given the importance of reflecting underlying costs, it is our intention to set UCAs for large new entry points on the basis of estimates of the actual long-run incremental costs (LRIC) that need to be incurred on the NTS, as a result of the new entry point being added to the system. Long-run incremental costs are the costs of network reinforcement that are required in order to accommodate the

new entry point on the NTS. Examples of long-run incremental costs associated with new entry points are the costs of laying new pipelines or adding extra compressors.

3.6. After estimating long-run incremental costs, we may also take into account any other relevant information for the purpose of setting the final UCAs for large new entry points, if appropriate on the basis of our statutory powers and duties. A key consideration in this regard, given that UCAs are currently used by NGG as reserve prices in the entry auctions, is whether in setting new UCAs an appropriate set of relative cost signals is being provided.

Network modelling

3.7. In order to estimate long-run incremental costs, it is necessary to undertake network modelling. For the purpose of estimating long-run incremental costs for large new entry points, network modelling involves starting from a so-called base network, with an assumed starting pattern of entry and offtake flows. An incremental flow is then added at a new entry point, and the cost implications of that incremental entry flow, in terms of the network reinforcement that is triggered by it, are analysed. In this way, estimates of the long-run incremental costs for the new entry point can be derived.

3.8. The network modelling process is described in further detail in chapter 4. The chapter also considers options on various technical assumptions that feed into the modelling process, and invites views on these options. Key assumptions include the approach to keeping the network in balance, and to using cost data (ie, whether past or more recent cost data should be used). We intend to estimate a robust range of likely costs under different market scenarios, to timescales consistent with the overall timetable set out in Appendix 1.

3.9. In the past, network modelling for UCA setting purposes has been undertaken by NGG, using its Transcost or Graphical Falcon models, on the basis of detailed modelling instructions from Ofgem. For the purpose of the current consultation, we again intend to instruct NGG to undertake network modelling in order to derive estimates of long-run incremental costs. We intend to use the Graphical Falcon model for the purpose of estimating long-run incremental costs for large new entry points. This is because Transcost, the model that has been used for setting UCAs at the start of the current price control period, is not suitable for modelling large incremental flows (ie, flows above 12 mcm/d).

3.10. As part of the modelling process, we intend to assess whether the LRIC estimates that have been derived are sufficiently robust for UCA setting purposes, given the input assumptions going into the model. We intend to ask NGG to develop ranges (rather than single point estimates) for long-run incremental costs at individual entry points, based on corresponding ranges of plausible input assumptions. If the LRIC estimates for an individual entry point are broadly applicable across a range of reasonable input assumptions, the final UCAs set on the basis of the LRIC estimates are more likely to be robust.

Other relevant information

3.11. Once LRIC estimates for large new entry points have been derived, we intend to consider whether there is any other relevant information that need to be taken into account for the purpose of setting the final UCAs. Possible factors include:

- the relationship to existing UCAs and the charging regime
- non-discrimination
- the precedent of Milford Haven, and
- differential treatment of storage sites (and other "strategic investment").

3.12. Chapter 5 reviews these factors in further detail, and invites views on them. It also sets out our initial views on whether it is appropriate to take these factors into account in the process of setting UCAs for large new entry points.

4. Modelling approach

Chapter Summary

This is a technical chapter that describes the modelling approach used to derive estimates of long-run incremental costs for large new entry points. These estimates feed into the process of setting UCAs for large new entry points. The chapter invites views on various approaches to network modelling within the context of large new entry points.

Question box

Question 1: Do you agree that it might be appropriate to model the "Auctions+" supply scenario and 1 in 20 winter peak demand scenario taken from NGG's latest Ten Year Statement, or would it be more appropriate to consider, in addition to or instead of these scenarios, other potential supply and demand scenarios?
Question 2: Do you agree with the proposed approach to setting the base network, including the proposal to use the same base network (ie, for 2008/09) for all new entrants irrespective of when their project is expected to come on-stream?
Question 3: Do you have any views on the range or combination of years that the network should be modelled for, given that with the Graphical Falcon model a multi-year modelling period (eg, 10 years or more) is unlikely to be practical, given the difficulty of producing robust long term gas flow forecasts, and given that forecasting for later years (when the new entry capacity is assumed to have come on-stream) may involve a circularity problem?
Question 4: Do you agree that it is appropriate to determine ranges of flow increments for each large new entry point (eg, 20-40 mcm/d, 40-60 mcm/d, 60-80 mcm/d), based on the incremental flow requests submitted by the applicant, and then set a separate UCA for each range? Also, do you agree that if the final capacity bookings signalled in the auctions are in excess of the chosen ranges, a new UCA request will have to be submitted?
Question 5: Do you agree that it may be appropriate to treat the costs of connecting pipelines differently from other network reinforcement costs incurred to accommodate large new entry points, and if so, how?
Question 6: Do you agree that cost allocation between entry and offtake should depend on the approach by which the network is balanced and, if so, that costs should be apportioned fully to entry points if a supply substitution approach is adopted?
Question 7: Do you agree that is appropriate to use supply substitution for network balancing purposes, in the context of modelling incremental flows at large new entry points, or are there situations in which a load absorption approach may be more appropriate? If we adopt supply substitution, which of the proposed four options would you consider the most appropriate, and on what grounds? Alternatively, would you consider another approach to supply substitution more appropriate, and if so, on what grounds?
Question 8: Do you have any views on what cost data should be used in the modelling work, eg should cost data from the last price control be used (for consistency reasons) or should more up-to-date cost data be used (to improve cost-reflectivity)?

4.1. As discussed in the previous chapter, in order to estimate long-run incremental costs, it is necessary to undertake network modelling. This chapter invites views on the modelling approach to adopt for this purpose, and covers the following broad areas:

- steps to estimate long-run incremental costs
- network balancing approach, and
- use of cost data (past or present).

Steps to estimate long-run incremental costs

4.2. The process of estimating long-run incremental costs for large new entry points can be separated into six steps:

- determine the base case gas flows and general base network
- determine expected incremental flows associated with the entry point
- estimate the costs of reinforcement
- estimate the costs of a connecting pipeline (if required)
- calculate long run incremental costs (LRICs), and
- apportion these costs to the entry point(s).

These steps are described in more detail below.

Step 1 Determine base case gas flows and general base network

4.3. The objective of step 1 is to determine the base case for gas flows and the physical network from which to consider incremental flows and investment.

Modelling timeframe

4.4. Given that the objective is to determine long-run incremental costs, an appropriate timeframe will have to be selected. Previous UCA modelling using the Transcost model was based on a 10 year timeframe. However, due to the fact that Graphical Falcon is more labour intensive it might not be feasible to model each of the 10 years, hence a decision will have to be made which years to include. Also, it is important to bear in mind that it becomes progressively more difficult to produce robust supply and demand forecasts further into the future, eg moving from 1 to 5 to 10 years ahead. Finally, forecasting for later years involves a potential circularity problem, as the new entry capacity that is under consideration would have come on-stream by that time. If the assumed base network (see below) is adjusted accordingly for later years, incremental cost estimates for the new entry point would end up being derived on the assumption that the associated network reinforcement is already there, and this appears inappropriate.

Base case gas flows

4.5. Base case flows could be determined in a number of ways. Given that one of the objectives of the auction regime is to provide long-run investment signals, one approach would be to model the base case flows using long-term auction signals, for example using the "Auctions+" supply scenario from NGG's latest Ten Year Statement (TYS).[2] This would utilise available auction signals and could be combined with forecast 1 in 20 demand information from NGG's TYS.

[2] National Grid (December 2005), Gas Transportation Ten Year Statement 2005.

4.6. However, there are other possible supply scenarios, including the "Transit UK" and "Global LNG" scenarios in NGG's latest TYS. These consider other possible ways in which gas entry flows may be distributed across the gas transmission network in future.

4.7. Similarly, there are different ways in which gas offtake flows could be distributed across the network in future. One option is to consider the 1 in 20 winter peak flow demand scenario used by NGG in its latest TYS, which is generally considered a key driver for network reinforcement purposes. Another potential driver is, arguably, summer demand.

4.8. In NGG's latest TYS, 1 in 20 winter peak demand generally incorporates gas imports through the Bacton-Zeebrugge (IUK) interconnector at winter peak times, and gas exports through the same interconnector at summer peak. Another possible market scenario, eg if Great Britain becomes a transit region for LNG and beach imports from Great Britain into continental Europe, is that the IUK interconnector exports gas at winter peak also.

4.9. Keeping in mind the above observations on possible market scenarios going forward, we invite views on both the supply and demand scenarios that may be appropriate for the purpose of modelling UCAs for large new entry points under the current consultation.

General base network and base year

4.10. A decision would have to be made with respect to the general base network and base year to be used, taking into account that forecasts for more distant years are progressively less reliable.

4.11. Given that it is very difficult to forecast what the gas network will look like many years ahead, it might be appropriate to set the base network in such a way that it incorporates all firm user commitment signals received through the long-term entry capacity auctions, for a year that is relatively close in future. This approach would suggest adopting the following physical base network, for 2008/09:

- base network assumed in NGG's latest Ten Year Statement (TYS) for 2008/09, plus
- incremental capacity for Isle of Grain for 2008/09 (as signalled in the November 2005 long-term system entry capacity auctions).

4.12. A base network modelled on this approach would use the most up to date information with respect to auction signals, ie it would include the larger flow rates at Milford Haven as well as incremental capacity at Isle of Grain as bid for in the most recent long-term entry capacity auction, hence the choice of 2008/09. It would provide a balanced base network, where supply meets demand, for the supply and demand scenarios included in NGG's latest TYS (ie, "Auctions+", "Transit UK" and "Global LNG" on the supply side, and 1 in 20 on the demand side).

4.13. If we adopted supply and demand scenarios other than those described in NGG's latest TYS, this might mean however that a different base network would have to be developed, which is able to accommodate the associated gas entry and offtake flows.

4.14. The different UCA requests for large new entry points refer to different starting years. It might be appropriate to use the same base network for all new large entrants, even if their project is assumed to start at a later date.

4.15. We invite views on the appropriateness of the base network and base year proposed above, and of using the same base network for all new large entrants (bearing in mind that a different base network might have to be developed if we model gas flow scenarios that are not included in NGG's latest TYS).

Step 2 Determine incremental entry flows

4.16. It seems appropriate to model the anticipated flow rate(s) for each new entry point, as requested by the UCA applicants.

4.17. Several of the proposed projects consist of different phases, with smaller increments early on in the project and larger increments in the more distant future. It might therefore be appropriate to set a schedule of UCAs for such projects (and other projects with uncertainty about flow rates), with each UCA corresponding to an associated range of flow increments. The ranges of flow increments would be adjoining (eg, 200 to 400 GWh/d, 400 to 600 GWh/d, and 600 to 800 GWh/d), so that each flow increment clearly corresponds to one UCA. If final auction bids are in excess of the maximum flow increment (ie, 800 GWh/d in this example), a new UCA request would have to be made. Only flows up to the top end of the range for each UCA would have to be accommodated at that UCA.

4.18. Under these arrangements, it is important that shippers indicate their genuine capacity requirements when applying for a UCA, as only entry capacity rights up to the maximum flow increment could be purchased in a forthcoming auction at the corresponding UCA level.

4.19. When the incremental flow is added at the entry node in question, the network is kept in balance (so that amounts of gas flowing in at entry points equal amounts of gas flowing out at offtake points) using either one of the following approaches:

- load absorption
- supply substitution, or
- a hybrid approach

These various approaches are discussed in more detail later in this chapter.

Step 3 Estimate costs of network reinforcement

4.20. Once flows throughout the network have been defined, any necessary network reinforcement (eg compressors and new pipelines) required to accommodate the incremental flows have to be identified.

4.21. The reinforcement projects will be costed using Graphical Falcon. After having identified the costs associated with each entry point, these costs are then divided by the entry flow rate to produce a UCAG (Unit Cost Allowance Gross) for the reinforcement element.

Step 4 Estimate costs of connecting pipeline

4.22. New entrants face a choice as to whether they want their UCA application to include a connecting pipeline from their site to the NTS, or whether they want to

have a "minimum facilities" connection (whereby they provide the connecting pipeline themselves).

4.23. In past situations where NGG was requested to build a connecting pipeline for a new entry node, eg for Milford Haven, the estimated costs of constructing the connecting pipeline were added to the estimated costs of network reinforcement (and allocated to entry costs). No distinction was made between the treatment of connecting pipeline costs and other network reinforcement costs for UCA setting purposes.

4.24. However, the provision of connecting pipelines can arguably be regarded as a contestable service, as NGG is not the only party who can provide the connecting pipeline. Developers or shippers can decide to construct and fund the connecting pipeline themselves and put the project out to tender. It might therefore be appropriate to treat the costs of connecting pipelines differently from other network reinforcement costs incurred to accommodate large new entry points.

4.25. One option is to exclude connecting pipelines automatically from the UCA calculations. If a connecting pipeline only benefits the new entrant, and is expected to do so for the foreseeable future, then such an approach may be appropriate. However, to the extent that other network users benefit from the new connecting pipeline, now or in the future, it might be more appropriate for the connecting pipeline to remain included in the UCA calculations (if the new entrant requests this).

4.26. Under the current entry regime a new entrant has to bid to pass an NPV test, which enables NGG to recover 50 per cent of the assumed project value. It might be argued that this leaves some stranded asset risk in relation to the connecting pipeline being borne by all shippers, and ultimately this risk is likely to be borne by consumers. Again, to the extent that other shippers (or consumers) do not benefit from the connecting pipeline, this may not be appropriate, especially in the case of large new entry points where the costs associated with stranded assets could potentially be high.

Step 5 Calculate long-run incremental costs (LRICs)

4.27. The modelling work set out in the previous steps identifies and costs network reinforcement projects required to accommodate the increased flows, possibly for a number of years over a ten year timeframe.

4.28. The past approach to calculating long-run incremental costs for a new entry point then involved taking a straightforward average of the reinforcement costs over the modelling period. A UCAG (gross UCA) is then calculated by dividing the average costs of network reinforcement by the flow rate. The UCAG is expressed in £/kWh. The UCAG is then annuitised to obtain the UCA (which forms the basis for the reserve prices in the entry capacity auctions). The UCA is expressed in pence per kWh per day. In order to annuitise, an annuitisation factor of 0.10772 would be used as per NGG's GT licence, reflecting a 6.25 per cent pre-tax real cost of capital.

4.29. This past method may need to be adjusted if modelling of long run incremental costs is performed for timeframes shorter than 10 years (see step 1).

Step 6 Apportion costs to entry point(s)

4.30. The final step in setting UCAs involves allocating long-run incremental costs between entry and offtake. For price control purposes, Ofgem's policy is based on a 50/50 entry versus offtake split, whereby 50 per cent of the costs is allocated to entry and 50 percent to offtake.

4.31. However, it may be preferable to adopt an alternative approach to allocating costs between entry and offtake. Arguably, the cost allocation method could depend on the method used to balance the network (as discussed in the next section), ie load absorption or supply substitution.

- Under load absorption, a 50/50 split may be appropriate, as the incremental entry flow is assumed to lead to incremental offtake flows.
- Under supply substitution, there are no such incremental flows at offtake and hence it may be more appropriate if 100 per cent of the costs are allocated to entry.

4.32. Alternatively, it would be possible to allocate costs based on engineering judgment, as was used in part to inform the setting of the Milford Haven UCAs. However, given that Milford Haven was a unique project at the extremity of the network, for other projects this approach may be much more subjective and hence might not be appropriate (see chapter 5).

4.33. In summary, the question arises how costs should be allocated between entry and offtake, and the three main options are:

- 50/50 entry versus offtake split
- 100 per cent cost allocation to entry, or
- cost allocation based on engineering judgment.

Network balancing

4.34. For any steady state hydraulic model to operate, it is necessary to achieve an overall balance between entry and offtake flows. There are various approaches that could be adopted to balance the network, such as load absorption, supply substitution, or hybrid schemes involving elements of both approaches.

Load absorption

4.35. In order to ensure that flows in the model remain balanced, it would be possible to increase demand flows to reflect increases in supply. This could either be done pro rata across the network or using judgment if demand is expected to increase proportionally more in one region of Great Britain compared with another region.[3]

4.36. A load absorption approach could result in a network in excess of 1 in 20 requirements. This would be especially the case if incremental entry flows are large, as in the case of large new entry points, and there is no associated increase in 1 in 20 demand. Hence a load absorption approach might not be appropriate, unless demand is indeed predicted to increase substantially during the period when the new entry point is expected to come on-stream. One possible scenario in which demand could increase substantially is if Great Britain

[3] The former approach was used for the UCA modelling underlying the May 2005 consultation document.

becomes a transit region with LNG and beach imports being exported to continental Europe. It then becomes debatable whether (some particular form of) a load absorption approach might be appropriate, and how network reinforcement costs should be allocated between entry and offtake points (see step 6 above).

Supply substitution

4.37. Alternatively, it would be possible to use supply substitution to rebalance the network. This would involve reducing the entry flow at one, some or all other network entry points as an incremental flow is being modelled at the entry point under consideration.

4.38. Judgments would have to be made about the appropriate location to reduce supply, eg whether supply should only be reduced at declining terminals, the "least helpful" existing entry point, etc, as discussed below.

4.39. Even if we model a market demand scenario where demand (eg because of increased flows through the IUK interconnector) rises above 1 in 20 demand as currently included in NGG's latest TYS, it may still be appropriate to adopt supply substitution as a network balancing approach. This is because for the purpose of modelling UCAs for large new entry points, we are considering incremental flows over and above an assumed set of base case gas flows, and the additional rise in demand (above 1 in 20) could be incorporated in the base case gas flows scenario.

Hybrid approaches

4.40. Using bespoke forecasts of patterns of entry and offtake flows can create a hybrid between load absorption and supply substitution. However, given the uncertainties associated with these forecasts it is not clear that there are sufficient advantages in such an approach to justify the increase in complexity.

Options for consultation

4.41. Given the arguments set out above, our initial view is to adopt a supply substitution approach in order to model the UCAs for large new NTS entry points for the interim period until April 2007.

4.42. This approach is based on the assumption that the incremental entry flow will replace an existing entry flow. In practice, there are a number of assumptions which might be made in relation to displacement of existing gas flows, such as:

- substitute pro rata across the whole network, ie reduce flows at all existing entry points by the same proportion
- substitute pro rata across the whole network, as above, but leave flows at nearby existing entry points unchanged (say, within a 50 km radius)
- reduce gas flows at the entry point(s) which are "least helpful", ie trigger the highest level of network reinforcement, and
- use engineering judgment with respect to which gas flows are most likely to be displaced by the new entrant.

4.43. The main advantage of the first approach is that it is mechanistic. However, it may not result in the most realistic outcome. Generally speaking, the second approach is likely to result in higher reinforcement costs than the first approach and may be more realistic. The third approach could result in costs that are significantly higher than the first two approaches. The fourth approach

involves forecasting market conditions, merit orders and a high degree of subjectivity.[4]

4.44. The four approaches incorporate different (implicit) views on the efficient size of the gas transmission network. For example, the third approach would most likely be associated with more network reinforcement taking place than the first or the second approach (within the modelling context). So if this higher level of network reinforcement is indeed what is required in order to create an efficiently sized network, it would arguably be appropriate to model UCAs on the basis of the third approach.

4.45. There may be some net benefits to consumers in terms of having a somewhat "oversized" network, as the costs of the additional transmission capacity may outweigh the benefits of avoiding network constraints and enabling the efficient operation of gas wholesale markets. However, an increased network size would also be associated with a higher risk of stranded assets, and the costs of these assets may be passed to consumers.

4.46. Views are invited on each of the four supply substitution approaches set out above. Separately, we also invite views on whether there are any supply and demand scenarios for which a load absorption approach may be more suitable.

Cost data

4.47. A decision will also have to be made with respect to the cost data to be used in steps 3 and 4 outlined above. UCAs for existing entry points set at the start of the current price control period are based on cost data that were available at the time. However, given subsequent increases in steel prices and the tightening of the contract market, there have been some significant changes to the costs of network reinforcement.

4.48. This raises the question whether future UCAs for large new entry points should be based on:

- cost data as used at the last price control review (eg, for consistency reasons)
- cost data as used for the Milford Haven UCAs, or
- cost data which is more up-to-date (eg, for 2004/05), to enhance cost reflectivity.

4.49. Our initial view is that, given the importance of UCAs being cost-reflective (see chapter 3), it is most appropriate to use up-to-date cost data. Views are invited on each of the options set out above.

[4] In the case of Milford Haven, because of its remote location relative to the prevailing network, all four approaches might have resulted in broadly similar cost estimates. This might not be the case for other large new entry points that are more embedded in the prevailing network.

5. Other relevant information

Question box

Question 1: Should Ofgem take into account any of the factors raised in this chapter when setting UCAs for large new entry points, and if so, on what grounds and in what way?
Question 2: Are there are any other factors, not mentioned in this chapter, that Ofgem should take into account when setting UCAs for large new entry points, and if so, on what grounds and in what way?

5.1. This chapter considers other potentially relevant factors that we may need to take into account for the purpose of setting the UCAs for large new entry points, after long-run incremental cost estimates have been derived from the modelling process set out in the previous chapter. It invites views from respondents on these factors. It also sets out our initial views on whether or not the factors should be taken into account.

5.2. We consider the following factors:

- relationship to UCAs for existing entry points
- non-discrimination
- the precedent of Milford Haven, and
- differential treatment of storage sites (and other "strategic investment").

Relationship to existing UCAs and charging regime

5.3. At the last price control review, UCAs were set for all entry points existing at the time. In addition, new UCAs have been set more recently for Milford Haven (see below) and for various other new entry points (as discussed in appendix 3).

5.4. The approach to estimating long-run incremental costs described in the previous chapter may result in UCAs for large new entry points being set on a different basis from that used for existing UCAs. For example, a different method to network balancing may be used. Further, even if the same method is used, the available information on costs will be different - and hence might result in differences between UCAs purely because of the date on which they were set (and the best available information at the time).

5.5. NGG currently sets reserve prices in various long-term and medium-term entry capacity auctions based on the UCAs for the corresponding entry points (see appendix 3). As a result, one possible concern about setting UCAs for large new entry points on a different basis from that used for existing UCAs is that this may skew relative prices between new and existing entry points. For example, if network reinforcement costs have generally risen since the start of the current price control period, and UCAs for large new entry points are set on the basis of more recent cost data, the resulting UCAs may be high relative to UCAs set at the start of the price control period. To the extent that any such relative price differences do not reflect true differences in the underlying costs of providing incremental capacity, shippers and new entrants may end up facing distorted relative price signals at new versus existing entry points.

5.6. Our preliminary view is that it is appropriate to set UCAs for large new entry points on a cost-reflective basis, and in a way that uses the best possible information and modelling approaches that are available at the time. However, we would also have regard to the potential level of new UCAs relative to existing UCAs. As UCAs (and reserve prices) are likely to be set on a different basis from April 2007 onwards, the UCAs for any large new entry points set until then will probably feature as reserve prices in at most one long-term system entry capacity (LTSEC) auction. Although there is a possibility of some relative price distortions in that auction, if no further adjustments are made, reserve prices are likely to be set on a different basis from April 2007 onwards, which could ensure more consistent relative prices between new and existing entry points in future.

5.7. One possible way of assessing the effect of setting UCAs for large new entry points on a different basis from that used for existing entry points is to apply the preferred modelling approach for large new entry points to some existing (large) new entry points as a "sensitivity test". The difference between the current UCAs for those entry points and UCAs derived under the preferred modelling approach could provide an estimate of the degree of relative price distortion that may occur.

Non-discrimination

5.8. A broader possible concern about setting UCAs for large new entry points on a different basis from that used for existing UCAs, raised by some stakeholders, is that this would result in discriminatory treatment of new relative to existing entry points. The argument runs that if we were to set UCAs on a different basis, eg by using a different method for balancing the network or by applying different cost data (see chapter 4), we would automatically be discriminating between new and existing entry points.

5.9. We fully endorse the need to promote non-discrimination. The principle of non-discrimination is, however, consistent with using the best information available at the time of making any decision. It appears unreasonable, other things being equal, to decide (knowingly) not to use the best possible information and modelling approaches that are available at the time.

Milford Haven precedent

5.10. The main precedent in determining a UCA for a large entry point has been the approach in relation to Milford Haven. Ofgem consulted on an appropriate UCA for the Milford Haven project in June 2003. At the time, there were plans for one LNG import terminal to be operational in 2006 and a possible second terminal to be operational at a later stage. This resulted in considerable uncertainty about the likely level of demand for capacity.

5.11. Ofgem therefore decided to determine two UCAs for Milford Haven: one for a flow rate below 500 GWh/d, and one for a flow rate above 500 GWh/d. We also decided that the appropriate UCA would be determined ex post, once the auction results were known.[5] When the Milford Haven UCAs were finally set, cost estimates were calculated assuming a maximum capacity significantly below the outturn capacity.

[5] Both UCAs were calculated using the Graphical Falcon model rather than the Transcost model, given that Transcost is not suitable for larger flow rates (ie, in excess of approximately 12 mcm/d).

5.12. Because of the remote location of the Milford Haven entry point relative to the prevailing network, an initial view on a significant proportion of the total network costs could be established relatively easily. In part, this was because the estimates would be largely insensitive to the detail of the supply substitution approach adopted (see chapter 4). Arguably, this makes Milford Haven something of a special case.

5.13. Our initial view is that it is unlikely that the Milford Haven approach, as described above, could reasonably be used for other large new entry points, given that Milford Haven was a unique project located at the extremity of the NTS. Moreover, since the Milford Haven UCAs were set, a number of underlying variables have materially changed (such as steel prices, the contracting market, and gas flow patterns). This is another reason why it may not be appropriate to use the exact same approach as was used for Milford Haven for other large new entry points.

Differential treatment of storage sites

5.14. A number of storage developers have argued Ofgem should provide differential treatment for varying types of NTS entry points when setting UCAs. In particular, some believe that storage sites should be treated differently compared with for example LNG import terminals, given the different flow patterns and "strategic" importance of storage sites.

5.15. We have several concerns with respect to this view. First, differential treatment could result in one type of NTS user having to cross-subsidise another type of NTS user and this seems discriminatory. Second, it is not clear why a storage site is more strategically important than, for example, an LNG import terminal. We have not seen any evidence to support such a view. Third, it might be argued that a differential approach for storage sites could potentially be anti-competitive. Fourth, differential treatment and resulting differences in relative prices, if applied on a permanent basis, could increase the risk of stranded assets faced by consumers. Stranded asset risks could be especially material when dealing with large new entry projects.

5.16. For these reasons, our initial view is that we do not intend to treat storage sites (or other types of "strategic" investment) differently from other entry points.

Appendices

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Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document. In particular, we would like to hear from consumers and their representatives, shippers, infrastructure developers, investors, NGG, and other network operators and licensees.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 28 April 2006 and should be sent to:

Colin Sausman
Associate Director, Transmission
Ofgem
9 Millbank
London
SW1P 3GE

Tel: 020 7901 7339
Email: Colin.Sausman@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document(s) to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Next steps: We plan to ask NGG to undertake preparatory modelling for a number of large new entry points, under a range of scenarios. Once the consultation is closed, we will develop an initial view on the appropriate approach to determining UCAs for large new entry points for the remainder of this price control period, in light of the responses to the consultation and further thinking. If necessary in light of this initial view, we may request further analysis from NGG and will then form a final view on the appropriate approach. We intend to publish an Authority decision on the appropriate approach, accompanied by a Section 23 notice, in June 2006. This would involve a 28 day statutory consultation process. Once UCAs have been included in NGG's Gas Transporter (GT) licence in respect of the NTS, through an Ofgem Direction, NGG can consult on price schedules and proceed with long-term auctions. Without fettering the Authority's discretion, this timeline should enable the new entrants to agree a date for an entry capacity auction with NGG towards the end of this gas year (ie, before October 2006).

1.7. Any questions on this document should, in the first instance, be directed to:

Colin Sausman
Associate Director, Transmission
Ofgem
9 Millbank
London
SW1P 3GE

Tel: 020 7901 7339
Email: Colin.Sausman@ofgem.gov.uk

CHAPTER 3

Question 1: Do you agree with the proposed scope of this consultation as set out in this chapter, ie covering network modelling issues and the identification of other potentially relevant information?
Question 2: Do you agree with the proposed focus on estimating actual long-run incremental costs, for the purpose of setting UCAs for large new entry points?

CHAPTER 4

Question 1: Do you agree that it might be appropriate to model the "Auctions+" supply scenario and 1 in 20 winter peak demand scenario taken from NGG's latest Ten Year Statement, or would it be more appropriate to consider, in addition to or instead of these scenarios, other potential supply and demand scenarios?
Question 2: Do you agree with the proposed approach to setting the base network, including the proposal to use the same base network (ie, for 2008/09) for all new entrants irrespective of when their project is expected to come on-stream?
Question 3: Do you have any views on the range or combination of years that the network should be modelled for, given that with the Graphical Falcon model a multi-year modelling period (eg, 10 years or more) is unlikely to be practical, given the difficulty of producing robust long term gas flow forecasts, and given that forecasting for later years (when the new entry capacity is assumed to have come on-stream) may involve a circularity problem?
Question 4: Do you agree that it is appropriate to determine ranges of flow increments for each large new entry point (eg, 20-40 mcm/d, 40-60 mcm/d, 60-80 mcm/d), based on the incremental flow requests submitted by the applicant, and then set a separate UCA for each range? Also, do you agree that if the final capacity bookings signalled in the auctions are in excess of the chosen ranges, a new UCA request will have to be submitted?
Question 5: Do you agree that it may be appropriate to treat the costs of connecting pipelines differently from other network reinforcement costs incurred to accommodate large new entry points, and if so, how?
Question 6: Do you agree that cost allocation between entry and offtake should depend on the approach by which the network is balanced and, if so, that costs should be apportioned fully to entry points if a supply substitution approach is adopted?
Question 7: Do you agree that is appropriate to use supply substitution for network balancing purposes, in the context of modelling incremental flows at large new entry points, or are there situations in which a load absorption approach may be more appropriate? If we adopt supply substitution, which of the proposed four options would you consider the most appropriate, and on what

grounds? Alternatively, would you consider another approach to supply substitution more appropriate, and if so, on what grounds?
Question 8: Do you have any views on what cost data should be used in the modelling work, eg should cost data from the last price control be used (for consistency reasons) or should more up-to-date cost data be used (to improve cost-reflectivity)?

CHAPTER 5

Question 1: Should Ofgem take into account any of the factors raised in this chapter when setting UCAs for large new entry points, and if so, on what grounds and in what way?
Question 2: Are there are any other factors, not mentioned in this chapter, that Ofgem should take into account when setting UCAs for large new entry points, and if so, on what grounds and in what way?

Appendix 2 - The Authority's Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.[6]

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly.[7]

1.4. The Authority's principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- the need to secure that all reasonable demands for electricity are met;
- the need to secure that licence holders are able to finance the activities which are the subject of obligations on them;[8] and
- the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.[9]

1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- promote efficiency and economy on the part of those licensed[10] under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;

[6] Entitled "Gas Supply" and "Electricity Supply" respectively.
[7] However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.
[8] Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.
[9] The Authority may have regard to other descriptions of consumers.
[10] Or persons authorised by exemptions to carry on any activity.

- protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
- contribute to the achievement of sustainable development; and
- secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- the effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation[11] and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

[11] Council Regulation (EC) 1/2003

Appendix 3 - Current NTS Entry Capacity Regime

1.1. This chapter describes the main features of the present regulatory and commercial arrangements for the sale of entry capacity on the NTS (National Transmission System). In particular it deals with:

- charging arrangements and long-term auctions
- provision of baseline entry capacity at existing terminals
- NGG's investment incentives, and
- UCAs and their importance to the auction and incentive arrangements.

1.2. These arrangements were put in place following the 2001 price control review for NGG. They were designed to provide incentives on NGG to invest in the NTS in a timely and efficient manner. The auctions were designed to ration scarce capacity efficiently and to allow shippers to signal their long-term needs with respect to future entry capacity.

Charging arrangements and long-term auctions

1.3. NGG's NTS transmission owner (TO) price control revenue recovers approximately 50 per cent from entry charges and approximately 50 per cent from exit charges. These entry charges are determined in long-term and short-term auctions.

1.4. The Long-Term System Entry Capacity (LTSEC) auctions were introduced following Ofgem's approval of NGG's Network Code modification proposal 0500 ("'Long-term capacity allocation") in September 2002. In these auctions, NGG offers for sale entry capacity at all NTS entry points, in 3 month blocks for the capacity year starting 2 to 16 years from the date of the auction. NGG provides a price schedule for each entry point that sets reserve prices for capacity sold up to "baseline levels". The latter set the amount of capacity NGG is obliged to release at each entry point and were set at the last price control review (see below). For existing entry points, capacity above baseline might in many cases be expected to trigger network reinforcement. The price schedules in the auctions are then upward sloping, with additional capacity costing more than capacity up to the baseline level.

1.5. For new entry terminals (ie entry terminals which did not exist in 2002) there is no baseline level of entry capacity. At these new entry points, price schedules could be downward sloping to reflect the economies of scale in the provision of new capacity (this tends to be more likely where the price curve includes the cost of NGG building a connecting pipeline).[12]

1.6. Under the current arrangements reserve prices for both existing and new entry points are derived from UCAs. These UCAs are meant to be proxies for LRICs and were calculated at the last NGG price control review for each of the existing entry terminals.

[12] For example, The September 2004 and December 2004 LTSEC auctions of capacity at Milford Haven had downward sloping price schedules.

1.7. Since the last price control review, Ofgem has determined UCAs for the following new entry points: Milford Haven, Barton Stacey, Garton, Burton Agnes (Caythorpe), Blyborough, Winkfield, Tatsfield, Albury and Palmers Wood.

Baselines for entry capacity at existing terminals

1.8. At the last price control review Ofgem based NGG's NTS TO price control revenue on a range of entry and exit capacity output measures for each of the five years of the control period. In the case of entry points, the maximum physical capacity available at each entry point was used to set baseline entry capacity and this was calculated by assessing the maximum capacity of an entry point without taking into account interactions between entry points and potential network constraints.

1.9. This level of maximum physical capacity at each existing NTS entry point defined the NTS TO baseline entry capacity. Ofgem also defined an initial NTS system operator (SO) baseline entry capacity figure for each entry point, calculated as 90 per cent of the NTS TO baseline.

1.10. NGG's NTS licence requires it to offer 80 per cent of the SO baseline for sale in the LTSEC auctions and the remaining 20 per cent has to be offered for sale in the shorter term entry capacity auctions (monthly, day-ahead and on-the-day auctions), together with any unsold capacity from the LTSEC auctions.

1.11. All capacity up to SO baseline level is classified as baseline entry capacity and capacity above baseline is classified as incremental entry capacity. NGG has a licence obligation to offer for sale all obligated entry capacity (both baseline entry capacity and obligated incremental entry capacity).

NGG investment incentives

1.12. As part of the TO price control, NGG receives funding to cover a projection of the level of capital and operating expenditure necessary to provide these baseline output levels. Funding for capital investment consists of depreciation and financing allowances (with the latter based on Ofgem's estimate of the cost of capital applied to net regulatory asset values).

1.13. The price control arrangements also include a range of TO and SO incentives designed to ensure that NGG undertakes investment in the transmission network in a timely and efficient manner. Two key SO incentives in this context are the entry capacity investment incentive and the entry capacity buy-back incentive.

Entry capacity investment incentive

1.14. The entry capacity investment incentive is a rolling five year incentive scheme that aims to ensure that NGG responds to auction signals for capacity in a timely manner.

1.15. The UCA for each entry point provides a (de facto) TO revenue allowance for the entry point. If NGG sells incremental obligated capacity above the baseline, then it is allowed to keep this revenue subject to a maximum cap on its real returns of 12.25 per cent on the required investment. This return is calculated as a return on the notional capital expenditure required to provide this

incremental capacity (as proxied by the UCA) rather than actual investment costs. NGG is also guaranteed a minimum real return of 5.25 per cent on the notional capital expenditure. Any incremental revenue above the maximum rate of return is refunded to shippers through the SO commodity charge.

Entry capacity buy–back incentive

1.16. As noted above, NGG's TO price control funds baseline capacity at each entry point. NGG is obliged to offer 90 per cent of these output measures for sale in the entry capacity auctions (ie, the SO baseline). The auction arrangements established in NGG's Network Code (which has now become the Uniform Network Code) allow shippers to acquire firm financial rights to flow gas through entry points onto the NTS. If NGG cannot provide this capacity, it has the option to buy back such capacity (possibly after interrupting any interruptible entry capacity), either in the daily buy-back market or in advance through capacity management agreements. This buy-back of entry capacity is on the basis of bids made by the shippers that have purchased the entry capacity. NGG has incentives to minimise the costs of buy-backs.

1.17. The purpose of buy-back incentives is to allow NGG to make efficient trade-offs between investment in new entry capacity and buying back capacity from shippers. NGG could choose not to undertake investment associated with the obligated level of entry capacity but in doing so, it would potentially be exposed to entry capacity buy-back costs if it had sold capacity it could not physically deliver. NGG needs to be able to demonstrate that any such judgements have been made on a reasonable and efficient basis and are in the interests of consumers.

1.18. NGG's incentive for deferring investment would be equal either to its allowed revenue (depreciation plus financing allowances) under the TO price control (in the case of baseline entry capacity) or to the revenue earned through its entry capacity investment incentive (in the case of obligated incremental entry capacity). NGG could use a proportion of this revenue to buy-back the capacity it has sold but has not physically delivered – including using capacity management agreements - allowing it to optimise investment and buy-back costs.

UCAs, auctions and NPV test

1.19. The UCAs are also important for shippers bidding in the entry capacity auctions as NGG has based reserve prices in the LTSEC auctions on the UCAs. The reserve prices also apply in the annual monthly system entry capacity (AMSEC) auctions and the rolling monthly system entry capacity (RMSEC) auctions. Reserve prices for day-ahead entry capacity are set at two-thirds of the UCA, and there is a zero reserve price for within-day capacity. Table A3.1 summarises the present auction arrangements.

Table A3.1 Auctions and reserve prices

Product name	Product type	Capacity period	Auction timing	Reserve price
Long-term system entry capacity (LTSEC)	Quarterly	Y+2 to Y+16	Annually (September)	UCA
Annual monthly system entry capacity (AMSEC)	Monthly	Y+1 & Y+2	Annually (February)	UCA
Rolling monthly system entry capacity (RMSEC)	Monthly	Next calendar month	1 of the last 5 business days preceding the next calendar month	UCA
Daily system entry capacity (DSEC)	Daily	Day ahead	7 days before gas flow day up to 02:00 on the day	2/3 of UCA
	Daily	On the day	Allocated after 06:00 on the day	0
Daily interruptible system entry capacity (DISEC)	Daily interruptible	Day ahead	7 days before gas flow day up to 13:00 on the preceding day	0

1.20. In the case of both existing and proposed new entry terminals, the UCAs influence the minimum value of LTSEC bids that would justify NGG releasing permanent obligated incremental entry capacity. Therefore the UCAs play an important role in the long-term auctions and determine whether NGG will release incremental capacity within the NTS and/or construct new entry points.

1.21. NGG's Incremental Entry Capacity Release (IECR) Methodology Statement specifies a net present value (NPV) test, which requires the NPV of the aggregate value of bids over 8 years to equal at least 50 per cent of the assumed project value. The assumed project value is an estimate of the costs of providing incremental entry capacity, and is calculated by multiplying the volume of incremental entry capacity being considered for release by the entry point's UCA. If the NPV of bids for incremental entry capacity over 32 quarters equals at least 50 per cent of the assumed project value for the incremental entry capacity, then NGG will seek approval to release permanent obligated incremental entry capacity. To date Ofgem has approved all such requests. It is then for NGG to provide the additional network capacity, probably by investing in network reinforcement.

Appendix 4 - Glossary

G

GWh/d

Gigawatt-hour/day

K

kWh/d

Kilowatt-hour/day

M

mcm/d

Million cubic metres/day

L

LNG

LNG consists of mainly methane gas liquefied at around minus 260 degrees Fahrenheit. Cooling and liquefying the gas reduces its volume by 600 times such that a tonne of LNG corresponds to about 1,400 cubic metres of methane in its gaseous state. LNG may be stored or transported by special tanker.

N

NTS

High-pressure gas transmission system consisting of entry points (or terminals), compressor stations, pipelines and offtake points. NTS pipelines transport gas from entry points to offtake points.

U

UCA

Unit Cost Allowance, expressed in p/kWh/d. UCAs are estimates of the (annuitised) unit costs of providing additional network capacity for an entry point on the NTS.

Appendix 5 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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