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Determining revenue drivers for South East exit capacity

Consultation

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Overview:

National Grid Gas (NGG) has made a submission to Ofgem asking for two new revenue drivers to be included in its gas transporter licence (the Licence) to support the potential release of new exit capacity in the South East area of the National Transmission System (NTS). The two proposed revenue drivers relate to the potential development of a number of Combined Cycle Gas Turbine (CCGT) power stations and gas storage projects respectively.

Revenue drivers are used to increase NGG's allowed revenue in response to demand from NTS users for incremental capacity backed by financial commitment from the user. In so doing, revenue drivers help improve the efficiency of NGG's network investment decisions and help protect consumers from the risk of having to pay for new investment which is not required.

This consultation sets out how Ofgem proposes to calculate the revenue driver values to be included in the Licence and invites comments on the proposed methodology used to determine network reinforcement requirements. We discuss the main issues in setting these revenue drivers, which are the cost assumptions used, the supply and demand modelling assumptions used, and the timing of the proposed licence modifications necessary to implement the revenue drivers ahead of the July 2012 capacity application window.

Context

At the Fourth Transmission Price Control Review (TPCR4), which covered the period 2007-2012, Ofgem set revenue drivers for all existing and anticipated gas entry points to the NTS. It also set revenue drivers for specific, large anticipated incremental exit projects and for smaller anticipated incremental projects in the South-West zone which, when aggregated, are large enough to require a revenue driver. Since then, provision has been made in the Licence for several new revenue drivers at both entry and exit points which were not anticipated previously. This consultation relates to revenue drivers for proposed projects which were not anticipated at the time of TPCR4.

Associated documents

- Decision on strategy for the next transmission price control – RIIO-T1, 31 March 2011 (Ref 46/11)
- Modification of Special Condition C8E of National Grid Gas's gas transporter licence, 20 June 2011 (Ref 80/11)
- Open letter consultation: Setting new revenue drivers, updating existing revenue drivers and adding new exit points to the Gas Transporter Licence, 22 March 2011 (Ref 40/11)
- Modification of special condition C8E of National Grid Gas plc's transporter licence, 27 April 2010 (Ref 52/10)
- Determining Revenue Drivers for Exit Points: Abernedd, Barking and Coryton, 21 August 2009 (Ref 106/09)
- Modification of Special Conditions C8D and C8E of National Grid Gas plc's gas transporter licence, 30 June 2009 (Ref 74/09 and 75/09)
- Notice of Modification of Special Conditions C8D and C8E of National Grid Gas plc's gas transporter licence in respect of its national transmission system under section 23 of the Gas Act 1986, 29 May 2009 (Ref 59/09 and 60/09)
- Determining revenue drivers for entry and exit points: Canonbie and Gilwern, 29 May 2009 (Ref 58/09)
- Determining Revenue Drivers for Entry and Exit Points: Canonbie and Gilwern, 8 April 2009 (Ref 37/09)
- TPCR 2007-2012 Final Proposals, 4 December 2006 (Ref 206/06)
- TPCR 2007-2012 Final Proposals, Appendices, 4 December 2006 (Ref 206/06b)

Copies of these can be found on the Ofgem website (www.ofgem.gov.uk).

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Executive Summary

Revenue drivers are designed to provide the right basis for National Grid Gas (NGG) to make decisions on whether to strengthen the National Transmission System (NTS) in the light of calls from its customers for additional capacity.

The revenue driver conditions, set out in NGG's gas transporter licence in respect of the NTS (the Licence), allow NGG's revenues to increase where it accepts an incremental capacity obligation. Incremental capacity obligations arise when NTS users signal a need for additional capacity at new or existing NTS entry or exit points, which would result in capacity holdings in excess of the obligated capacity amounts NGG is legally obliged to offer for sale.

When an NTS user requests incremental capacity, NGG must determine whether it needs to reinforce the NTS to provide that capacity. If reinforcement is needed, NGG will carry out system modelling to help determine the costs of the most appropriate investment required to provide that capacity. Ofgem will then review and consult on NGG's cost proposal. The proposal, as agreed between Ofgem and NGG, will be included in the Licence so that NGG receives an appropriate revenue allowance when it takes on the capacity obligation following a formal user signal. This allowance – the 'revenue driver' – is generally in the form of an annuitized £s per capacity unit amount.

NGG has been approached by project developers about two potential large offshore gas storage sites and five proposed CCGT power stations which would connect to the NTS in the South East area of England. The proposed storage sites would be connected at the Bacton Aggregate System Entry Point (ASEP). The proposed power stations would be connected close to the connections points of a number of existing NTS connected power stations and a Gas Distribution Network (GDN) near the Isle of Grain Liquefied Natural Gas (LNG) importation terminal in Kent.

Representatives of the developers of these projects have indicated to NGG that they would like to be able to book incremental NTS exit capacity in the July 2012 exit capacity application window. They would use the incremental capacity from the gas year commencing 1 October 2015. We need to consult on and, if appropriate, make the necessary licence changes in the first half of 2012, in order to insert revenue drivers in NGG's licence ahead of the July 2012 application window. For this reason, we are now consulting on the methodology used and the values proposed for setting these revenue drivers. We intend to complete the necessary licence modifications in the early part of 2012, in advance of and separately from the publication of Final Proposals on the current transmission price control review (RIIO-T1).

This consultation describes the methodology and modelling assumptions used to determine the proposed revenue drivers and seeks views on the main issues in setting them. These issues are the cost assumptions used, the supply and demand modelling assumptions used, and the timing of the proposed licence modifications necessary to implement the revenue drivers ahead of the July 2012 capacity application window.

1. Introduction

Chapter Summary

This chapter explains why we are consulting on proposed revenue drivers for the provision of new exit capacity in the South East area of England.

Purpose of this document

1.1. This document sets out how we propose to set the revenue driver values to be included in National Grid Gas' (NGG) gas transporter licence (the Licence) in the light of the potential need for new exit capacity in the South East of England.

1.2. The background to this proposal is that NGG has received enquiries from a number of parties concerning the release of a significant amount of incremental National Transmission System (NTS) exit capacity in the South East of England, in relation to the potential development of five Combined Cycle Gas Turbine (CCGT) power stations and two gas storage projects. At least one of the developers of these projects has indicated to NGG that they would like to be able to book incremental NTS exit capacity in the July 2012 exit capacity application window for use from the gas year commencing 1 October 2015.

1.3. A signal for incremental NTS exit capacity is formally triggered when an NTS user books Enduring Annual NTS Exit (Flat) Capacity via the exit capacity application processes.¹ However, to give it an appropriate level of certainty concerning the cost recovery of any associated investments, NGG will not typically make incremental capacity available at a new or existing exit point unless a revenue driver value has been established in the Licence. For this reason, and to allow time for the revenue driver modelling to take place and for it to make a submission to us, NGG prefers shippers and developers to provide a specification of requirements in advance of the auction or application window in which they intend to bid.

1.4. The Fourth Transmission Price Control Review (TPCR4), which covered the period 2007-2012, set revenue drivers for all existing and anticipated gas entry points, for certain exit projects and for some projects in the South-West area. Since TPCR4 came into effect, revenue drivers have also been added to the Licence to

¹ The commercial arrangements associated with the release of incremental entry and exit capacity are subject to the legal text of the Uniform Network Code (UNC) which governs the contractual relations between network users.

allow for previously unanticipated requirements for additional capacity at both entry and exit points.²

1.5. In July 2011, NGG provided a report following an earlier request that we facilitate the introduction of two new revenue drivers covering the proposed South East developments. NGG has provided us with its analysis of the network reinforcement and associated costs necessary to support the potential incremental capacity requests. Given the proximity of the potential CCGT developments and the potential storage site developments, NGG has proposed that two generic South East revenue driver values should be inserted into the licence, one covering each type of development.

1.6. In the past revenue driver values have been established in the Licence at the time of the price control review when possible. Negotiations and consultations on the current transmission price control, RIIO-T1, will conclude towards the end of 2012 for implementation from 1 April 2013. Setting South East revenue drivers as part of the RIIO-T1 process would not be compatible with allowing project developers to book incremental exit capacity during the July 2012 application window. These revenue drivers are therefore being considered separately from the RIIO-T1 process.

Overview of this document

1.7. This document is organised into the following chapters:

- Background – This chapter describes how users acquire incremental exit capacity on the NTS and the role of revenue drivers in the current price control. We also provide an overview of the revenue drivers set for incremental exit capacity during and since TPCR4.
- Modelling approach - This chapter describes the network analysis and modelling assumptions NGG has used to determine the reinforcement work necessary to support the potential South East incremental exit capacity signals.
- Cost estimation - This chapter summarises the results of the network modelling undertaken by NGG, sets out the unit cost assumptions we propose to apply to the reinforcement requirements established, and presents how this data translates into proposed £/capacity unit amounts.
- Way forward - This chapter explains our proposed next steps in establishing revenue driver values for the SE projects in the Licence.

1.8. There are also three appendices to this document:

- Appendix 1 provides details on how to respond to this consultation.

² Entry point revenue drivers have been added for Canondie. Exit point revenue drivers have been added for Gilwern, Barking, Coryton, Tonna (Baglan Bay) and Pembroke.



Determining revenue drivers for South East exit capacity

- Appendix 2 contains a glossary.
- Appendix 3 provides details on how to give feedback on this consultation.

2. Background

Chapter Summary

This chapter describes how users acquire incremental exit capacity on the NTS and how this relates to the role of revenue drivers in the current price control. We also provide an overview of the revenue drivers set for incremental exit capacity during TPCR4.

Incremental NTS exit capacity

2.1. NGG owns and operates the high pressure gas transmission network in Great Britain, the NTS. Shippers bring gas onto the NTS from gas fields, from storage, or as imports via interconnectors and Liquefied Nitrogen Gas (LNG) import terminals. The gas can then be delivered direct to Transmission Connected Customers or to the GDNs and Independent Gas Transporters (IGTs) for further delivery to final consumers, for export via interconnectors, or to be put into storage.

2.2. In order to use the NTS for both entry and exit flows, shippers must first buy entry capacity to flow gas onto the NTS, as well as exit capacity to take gas off the NTS. If shippers do not buy sufficient capacity for the actual amounts of gas they flow, they will incur overrun charges, which are set out in the Uniform Network Code (UNC).³

2.3. NGG is obliged under the Licence to offer certain amounts of firm entry and exit capacity for sale. For exit capacity, these amounts are the baseline values set out in the Licence plus any previously released incremental capacity. NGG is funded through its price control revenue allowance to provide this capacity and does not receive additional funding unless it receives a capacity booking for a level of capacity in excess of the prevailing obligated level (ie incremental capacity is requested). Additional funding is only available if it has been agreed through the revenue driver mechanism.

2.4. Arrangements for booking incremental exit capacity are set out in the UNC and are subject to the change procedures of the UNC. In January 2009 we directed the implementation of UNC0195AV 'Introduction of Enduring NTS Exit Capacity Arrangements'. These enduring arrangements apply to capacity booked for use from 1 October 2012. Where investment is required to provide incremental NTS Exit (flat) Capacity, the Licence specifies a 36 month lead time (from the 1 October following the booking), to meet the new capacity need, therefore all incremental exit capacity bookings where investment is required are now made under the new arrangements.

³ A copy of the UNC can be found on the website of the Joint Office of Gas Transporters www.gasgovernance.co.uk. See Section B2.12 and B3.13 respectively.

2.5. Among other things, UNC0195AV introduced a universal NTS Exit (Flat) Capacity product, non-discriminatory NTS Exit (Flat) Capacity booking arrangements, and the requirement for equivalent financial user commitment for the release of incremental exit capacity between categories of NTS users (gas shippers and GDNs).⁴

2.6. Under the enduring arrangements, NTS Exit (Flat) Capacity is available for purchase in four sub products, including an Enduring Annual NTS Exit (Flat) Capacity product. Enduring Annual NTS Exit (Flat) Capacity gives shippers a firm capacity entitlement for each day in the gas year, and all subsequent gas years, until NGG is notified of, and accepts a reduction or an increase in these enduring rights.

2.7. There are currently⁵ three processes for acquiring Enduring Annual NTS Exit (Flat) Capacity; these are:

- July application window - these run each year in July for users to acquire Enduring Annual NTS Exit (Flat) Capacity in gas years Y+4, Y+5 and Y+6
- Ad-hoc applications - NGG will receive ad-hoc applications from users between 1 October and 30 June each year for enduring annual NTS exit (flat) capacity from 6 months in advance and up to 1 October Y+4
- Enduring annual NTS exit (flat) capacity can also be requested by developers via an Advance Reservation of Capacity Agreement (ARCA). In this case capacity will be reserved for subsequent allocation to a User.

2.8. In order to participate in the July application window for Enduring Annual NTS Exit (Flat) Capacity at a particular exit point, the specific exit point must be included in the Licence and (in normal circumstances) a revenue driver should also be included in the Licence. Under the enduring arrangements where an NTS user books capacity in addition to the capacity allocated at the initialisation stage,⁶ a financial user commitment is deemed to apply to the entire capacity holding. The financial user commitment which is required is equivalent to 4 years of NTS exit capacity charges. This is designed to protect NGG, other NTS users and the generality of customers from exposure to the costs of stranded investment.

The role of revenue drivers

2.9. When an incremental capacity signal is received NGG must consider meeting the incremental request through existing system capability or, under its exit capacity substitution and revision methodology, by reallocating unsold baseline capacity from another NTS exit point. In the event that these options cannot meet the incremental

⁴ This applies only to NTS Exit (Flat) Capacity. GDNs, not shippers, are still required to book NTS exit (flexibility) capacity. All users can, under the appropriate contractual agreements vary the rate at which they enter or exit gas from the NTS.

⁵ UNC proposal 0376/0376A is currently being progressed under the self-governance procedures of the UNC. This proposal seeks to change certain parameters applying to the enduring annual capacity booking process.

⁶ The initialisation stage took place in 2009 and allocated NTS users an initial amount of NTS exit capacity based on prevailing capacity holdings. A user commitment is not applied to these holdings unless additional or new capacity is booked at the exit point concerned.

capacity need in full, analysis is conducted to establish network reinforcement requirements, which may result in additional funding through the revenue driver mechanism.

2.10. The revenue driver generally takes the form of an annuitized £s per capacity unit amount. Under the current arrangements⁷ this means that if the project is triggered and the capacity is delivered in line with NGG's obligations, then NGG can recover this revenue allowance as part of its System Operator (SO) allowed revenues for each day of the first five years after the capacity obligation begins. After five years, the depreciated value of any actual⁸ investment made is included in NGG's Regulatory Asset Base (RAB) subject to being deemed economic and efficient and NGG earns a return on this under its Transmission Owner (TO) price control.

2.11. Revenue drivers automatically adjust NGG's revenue allowances in response to demand for incremental capacity requiring investment. Revenue drivers seek to represent the costs (operating expenditure (opex), depreciation and return) of the amount of investment deemed necessary at a particular entry or exit point to facilitate the release of incremental capacity. This sets an incentive on NGG to drive down costs and hence 'beat' the allowed revenue whilst also providing a benefit to customers when lower actual investment costs pass through to the RAB.

2.12. Revenue drivers should reflect costs that NGG would incur in releasing incremental capacity. If the correlation between incremental revenue from the revenue driver and the costs incurred to deliver the incremental output is poor, the incentives for delivering outputs can be distorted. If the revenue driver is too low NGG will be insufficiently funded to fully remunerate its investment costs, so NGG may decide not to invest where warranted by demand. This could result in increased capacity buy-back costs. If the revenue driver is too high, NGG would be remunerated by more than the cost of making the incremental capacity available and so consumers would face unnecessarily high prices for five years. These considerations will be taken into account by NGG when it assesses the needs-case basis for the specific investment over the long-term i.e. based on the regulatory asset life of 45 years.

2.13. If reinforcement work is required to provide the additional capacity expected to be requested by a shipper, a revenue driver must be set for that entry or exit point to fund the investment required. NGG does not release funded incremental capacity unless there is a revenue driver associated with it. Revenue drivers are set using three main steps -

- 1) Modelling is done to see what, if any, reinforcement works are required on the NTS to accommodate the additional flows.

⁷ Under the RIIOT1 framework the SO/TO split of revenues associated with revenue drivers is under review. Any changes to this split will only affect revenue drivers triggered within the RIIOT1 period starting 1 April 2013.

⁸ Actual investment does not include the costs of alternative contractual solutions.

- 2) Unit cost assumptions are applied to the reinforcement works to calculate the investment cost to provide the incremental capacity.
- 3) The unit revenue driver is calculated, and this figure is annuitised and then converted to the appropriate cost base.

TPCR4 and revenue drivers

Revenue drivers

2.14. As part of TPCR4, we set revenue drivers to allow the release of incremental exit capacity at a number of exit points over the price control period. The revenue drivers take one of two forms depending on the size of the exit capacity increment.

2.15. For large exit capacity projects (those greater than or equal to 15 GWh/day) a specific revenue driver was calculated for each exit project. There were five exit points for which these revenue drivers were derived.⁹ The amount of revenue specified in the Licence is earned once the incremental amounts specific to each project (also specified in the Licence) have been contractually delivered.

2.16. For small exit capacity projects a zonal revenue driver was implemented in the Licence. The zonal revenue driver covered the South West region and delivered a revenue allowance based on a fixed rate per unit of capacity delivered¹⁰.

Network modelling

2.17. Ofgem asked NGG to undertake network modelling to understand what reinforcement work would be required to deliver each project. NGG responded with a list of reinforcement work for each project which Ofgem reviewed and agreed as part of the TPCR4 regulatory package.

Cost estimation

2.18. Ofgem then calculated the cost of the reinforcement work by applying a unit cost assumption to the reinforcement work required. This derived a total incremental investment cost for each project which was then converted to a 2005/06 price base. A number of adjustments were made to the total incremental investment costs for the projects below -

⁹ Langage power station Phase 1, Langage power station phase 2, Marchwood power station, Pembroke power station, Grain power station.

¹⁰ The SW revenue driver allowance is based on £820,000 per incremental unit of capacity contractually delivered.

- Langage Phase I – a downward adjustment was made because some funding had already been provided for this project in the previous price control period.
- Pembroke and Grain - A downward adjustment was made to both projects to take account of the possibility of long term contractual solutions as an alternative to network investment to deliver the incremental exit capacity. The downward adjustment provided a revenue driver which was based on 80% of the physical investment costs for both projects in order to take account of the effect contractual solutions could have in offsetting the need to make network investments.

Revenue driver calculation

2.19. The figures were then annuitized to provide annual revenue driver amounts for the anticipated incremental quantities for inclusion in the Licence.

Exit revenue drivers during TPCR4

2.20. Since the TPCR4 settlement was agreed, five revenue drivers have been implemented in the Licence for exit projects not anticipated at the time of the price control.¹¹ The process undertaken to implement each of these revenue drivers has largely mirrored that used at TPCR4. However, below is brief summary of the modelling approach used for each revenue driver, highlighting any differences.

Gilwern

2.21. We asked NGG to provide a list of reinforcement work required for an incremental capacity amount of 20.215 GWh/day at Gilwern. Specifically, we asked NGG to undertake network modelling to identify the required reinforcement work in terms of -

- Additional compressors
- Additional NTS pipelines
- Any work necessary to modify the pressure at the exit point
- Any other relevant work

2.22. NGG identified a need for additional gas telemetry equipment at Gilwern. As telemetry equipment had not been included in the TPCR4 revenue drivers there was no established approach on how NGG should be remunerated for such equipment. Two options were consulted on: including the gas telemetry equipment in the revenue driver reinforcement work, or excluding gas telemetry equipment from the revenue driver and remunerate NGG through a separate fixed cost mechanism. We concluded that gas telemetry equipment should be included within the revenue driver.

¹¹ Revenue drivers have been implemented for Gilwern, Barking, Coryton, Tonna (Baglan Bay) and Pembroke (Phase 2).

2.23. Unit cost assumptions were then applied to the reinforcement work identified by NGG. For reasons of consistency, we applied the unit costs used to set TPCR4 revenue drivers.

2.24. The incremental costs identified were then annuitised and included in the licence as a pounds per GWh per year for the release of a specific amount of capacity per day.

Barking and Coryton

2.25. We asked NGG to undertake network modelling to identify the reinforcement work required to meet incremental capacity at Barking and Coryton. This request also required NGG to assess the potential for contractual solutions to meet the incremental capacity need as an alternative to physical investment in the NTS. Part of this assessment included consideration of the number of users at entry and exit points in close proximity to the incremental capacity signals, which could potentially be paid for 'interruptible services'¹², and consideration of the number of days of interruptible capacity which would require to be procured.

2.26. NGG was asked to take into account the impact of reinforcement necessary to deliver the Fleetwood storage project in order to make sure reinforcement costs associated with this project were not double counted.

2.27. We also asked NGG to make a number of assumptions when undertaking the network modelling. These are summarised below -

- Base network: a base network for 2012/13 was derived from the Ten Year Statement (TYS)
- Demand assumption: NGG assumed 1 in 20 peak demand and Gas Distribution Network obligations for 2012/13
- Supply assumption: NGG used a 'low local supply'¹³ scenario
- Supply and demand balancing: NGG used balancing assumptions set out in the most recent version of the Planning Code document¹⁴

2.28. After the list of reinforcement works was identified, we applied the unit costs to derive the total incremental costs of investment. The unit costs at TPCR4 were used to set the Barking and Coryton revenue drivers.

2.29. We also included a downward adjustment factor to take account of possible contractual solutions to deliver the incremental capacity amount. An adjustment factor value of 0.8 was used to maintain consistency with previous revenue driver.

¹² This can be referred to as a gas 'turn-down' contract.

¹³ The low local supply scenarios assume that supplies from entry points local to the exit point under consideration are at reduced levels.

¹⁴ In the case of Barking and Coryton this was the 2008 Planning Code.

Tonna (Baglan Bay) and Pembroke (Phase 2)

2.30. The derivation of revenue drivers for both Tonna (Baglan Bay) and Pembroke largely followed the process used to set the revenue drivers described above. NGG was asked to undertake network modelling to derive a list of reinforcement work necessary to deliver the incremental capacity. Ofgem specified the assumptions NGG was required to use in the network modelling.

2.31. We applied the unit costs assumptions used at TPCR4 to the reinforcement work identified by NGG. The total incremental cost was then annuitised to derive the revenue driver value to be placed in the Licence.

3. Modelling approach for the South East revenue drivers

Chapter Summary

This chapter describes the network analysis and modelling assumptions NGG has used to determine the reinforcement work necessary to support the potential South East incremental exit capacity signals.

Question 1: Do you agree with NGG's proposed approach of introducing a 'banded' revenue driver to meet generic CCGT incremental capacity demand in the South East?

Question 2: Do you agree with NGG's proposed approach of introducing a separate revenue driver to meet potential storage site demand for incremental capacity in the South East?

Question 3: Do you agree with the proposed 50 GWh/day increments used in modelling the banded CCGT revenue driver?

Question 4: Do you agree with the network modelling approach adopted by NGG?

Question 5: Do you agree with the data input modelling assumptions adopted by NGG?

Question 6: Do you agree with the 400 mcm/day demand forecast assumption for modelling the storage site reinforcement requirements?

South East incremental capacity

3.1. NGG has been approached by project developers concerning two potential large offshore gas storage sites and five proposed CCGT power stations. If the developments are commissioned, the proposal is to connect the power stations to the South East region of the NTS and the storage sites at the Bacton site. The proposed power stations will be connected close to a number of existing NTS connected power stations and GDN offtakes near the Isle of Grain LNG importation terminal in Kent. Table 1 below shows the proposed projects and the incremental capacity amounts associated with each project. The site names are not given to protect commercial confidentiality.

Table 1: South East projects and incremental capacity requirements

Type	Project/Site	Capacity requirement (GWh/day)
Storage	Site 1	352.73
	Site 2	656.95
	Total	1009.68
Power Station	Site 1	42.56
	Site 2	23.83
	Site 3	144.04
	Site 4	54.37
	Site 5	60.00
	Total	324.79

3.2. The operational requirements for power stations and storage facilities are not the same. Power stations are expected to take gas off the NTS at times of high demand. Although the developers of the storage sites may want to respond to short term gas price changes and therefore may operate on a fast cycle basis, it is unlikely that a storage site would wish to take gas from the NTS to inject into store on days of very high demand, close to a Peak day. The geographical differences between the two locations may also drive different reinforcement costs.

3.3. Consequently NGG has proposed to implement two separate revenue drivers to fund the network reinforcements necessary to deliver the incremental capacity requirements. NGG’s proposal is for a single ‘banded’ revenue driver for incremental capacity required for the power station projects and another revenue driver that covers either one or both potential storage site developments.

3.4. The ‘banded’ revenue driver approach is intended to mitigate uncertainty concerning the actual incremental capacity booked. It will provide NGG with the certainty that it will be remunerated in a manner proportionate to the capacity connected and avoid the need to recalculate, and re-consult on the value of the revenue driver should the level of incremental capacity required change. This approach will differ from banded revenue drivers set for incremental entry capacity, which are entry point specific. Given the specificity of the two proposed storage developments – both are for sizes and locations unlikely to be seen elsewhere – NGG does not propose a ‘banded’ approach for them but an approach that covers either one or both of the specified projects.

3.5. NGG has modelled the reinforcement required to support 50 GWh/day increments up to a maximum of 250 GWh/day, to support its estimates of the range of total incremental capacity required to support the likely CCGT developments. For the storage sites, NGG has modelled the reinforcement required to meet the total incremental capacity requirements of both projects independently and together (i.e. assuming both projects go ahead). Thus NGG modelled capacity increments of 352.73, 656.95 and 1009.68 GWh/day respectively for the storage developments.

The network modelling methodology

3.6. Based on the capacity increments assumed above, NGG undertook network modelling to calculate the required reinforcement work using the methodology used to derive exit point revenue drivers during and since TPCR4. The stages of the methodology are as follows:

3.7. NGG first derives a 'baseflow network' which determines if the demand levels at exit points interactive to the exit point in question can be increased to their current obligated level with or without network reinforcement. NGG does this by -

- Selecting a physical network model and supply and demand scenarios
- Increasing the demand flows in the local area in line with their current obligated levels
- Increasing supply flows at the least interactive supply points¹⁵ to match the current obligated demand levels- this is known as the least helpful supply assumption
- If system pressure limits cannot be supported, reinforcing the NTS so the obligated demand levels can be met
- Recording any reinforcements made

3.8. NGG then determines the reinforcement necessary to accommodate the incremental capacity demand associated with the proposed projects. It does this by -

- Taking the baseflow network determined above and adding the incremental demand flow
- Again increasing supplies at the least interactive supply points to match the incremental capacity increase¹⁶
- If the system pressures cannot be supported, reinforcing the NTS so that the incremental capacity levels can be met
- Recording these incremental reinforcements

3.9. Therefore, NGG will have identified the reinforcements and hence the marginal costs for the incremental capacity.

Modelling assumptions

3.10. To complete the stages of the modelling analysis described above NGG made a number of assumptions concerning input data. There were some differences between the assumptions used to derive the values of both the storage site and the power station revenue drivers; these are described below.

¹⁵ These are usually NTS entry points that are geographically distant from the exit point under consideration.

¹⁶ Supplies are capped at the minimum of the obligated level and the capability at a particular ASEP given the particular supply pattern.

Power station projects modelling assumptions

3.11. **Number of years modelled:** NGG undertook modelling for the Gas Year beginning 1 October 2015. The developers of both the storage and CCGT developments have indicated they would like the incremental capacity to be made available from that year.

3.12. **Base network:** NGG used a 2015/16 physical network derived from the latest available copy of the TYS (2010).

3.13. **Demand assumptions:** NGG used differing demand assumptions for GDN exit points and Direct Connect¹⁷ (DC) system points. These are explained in the table below.

Table 2: Demand assumptions used for power station revenue drivers

Offtake type	National assumption	South East interactive assumption
Gas Distribution Networks	2015/16 sold exit capacity levels	Higher of 2015/16 exit allocations or the obligated capacity level
Direct Connect	Forecast 1 in 20 peak demand	Obligated capacity level

3.14. NGG used two different demand assumptions for GDN points depending on the proximity of the GDN to the South East area. For the GDN points considered most interactive¹⁸ to the South East area, NGG assumed the demand level was the higher of the 2015/16 exit allocations or the obligated baseline capacity amount. In practice, the obligated capacity level was higher than the exit capacity allocations. For those GDN points outside the interactive area, NGG assumed a demand level based on the sold quantities of exit flat capacity from the 2010 exit capacity allocation window for gas year 2015/16.

3.15. NGG also divided DC end users into two areas: one for those most interactive to the South East and one national area. NGG assumed DC system points located in the national area would offtake gas at forecast 1 in 20 peak demand levels. For DC system points considered to be most interactive to the South East, NGG assumed demand levels based on the baseline capacity level plus any additional capacity secured through previous exit capacity allocation windows or via an ARCA. This equates to the obligated capacity level.

¹⁷ A Direct Connect is an exit point which offtakes gas directly from the NTS. It does not include exit points classified as GDN offtakes.

¹⁸ NGG typically define the most interactive points as those closest to the area being considered. East Anglia, North Thames and South East Local Distribution Zones were defined as most interactive.

3.16. **Supply assumption:** NGG used a low local supply assumption. This assumed that increases in gas supplies to meet the increased South East demand would come from areas of minimal interaction. In this case supplies were increased at ASEPs in the 'Northern Triangle'¹⁹ zone. This modelling assumption is used to capture the reinforcement costs necessary to support the most onerous supply and demand balancing gas flow. A minimum flow level of 10.09 mcm/day²⁰ was assumed at Isle of Grain – a point considered local to the Bacton Interconnector, while Bacton supplies were set, using forecast supply flow levels, at 27.5 mcm/day.

3.17. **Capacity increments:** NGG modelled five capacity increments of 50 GWh/day up to a maximum of 250 GWh/day. These increments will form the basis of the proposed banded revenue driver approach i.e. a potentially different £'s per capacity unit amount for each capacity band.

Storage site revenue driver assumptions

3.18. **Number of years modelled:** NGG undertook modelling for the Gas Year beginning 1 October 2015. This is the year from which the developers of both the storage and the CCGT developments have indicated they would like the incremental capacity to be made available.

3.19. **Base network:** NGG used a 2015/16 physical network derived from the latest available copy of the TYS (2010).

3.20. **Demand assumptions:** NGG has modelled demand using two national demand forecast levels: 350 mcm/day and 400 mcm/day. This was deemed appropriate to accommodate the potential that the two storage sites could operate as 'fast cycle' facilities. The 350 mcm/day demand forecast is the highest national demand that an existing storage site has injected up to 95% of its capacity. The 400 mcm/day demand forecast is a level of demand NGG considers a fast cycle storage operator could reasonably operate under. To put this figure in context, NGG's Winter Outlook 2011/12 report, published in October 2011, forecasts a total diversified 1 in 20 peak day gas demand of 474mcm/day for 2011/12.²¹

3.21. Older storage sites, such as Rough, tend to operate on a seasonal basis and usually offtake gas from the system when prices are low. These storage sites typically offtake gas at a steady rate during the summer months. The storage sites proposed for the South East may be fast cycle facilities which would allow them to respond much more quickly to short term changes in price and market demand for gas. This may mean that these new storage sites will offtake gas during periods of higher demand than older storage facilitates typically would, although it is considered highly unlikely that they would seek to take gas from the NTS on peak demand days.

¹⁹ This zone comprises of the St Fergus, Teesside and Barrow entry points.

²⁰ The 10.09 mcm/d forecast is based on two years' worth of historical operational flow data to calculate an appropriate minimum level of daily supply.

²¹ A copy of the NGG's Winter Outlook report can be found at the following location on NGG's website: http://www.nationalgrid.com/NR/rdonlyres/BE947476-51DF-4D5F-8E2B-5342595157A9/49492/Winter_Outlook_Report_201112.pdf

3.22. Both GDN offtakes deemed to be interactive to the South East area and those at a 'national' level have been modelled using the two demand assumptions. GDN flex capacity for 2015/16 has also been included in the assumption.²²

3.23. DC gas flows for all areas except those with a high interaction with the South East were also modelled using the two demand assumptions. The DC points deemed to be interactive were modelled at the obligated capacity level.

3.24. **Supply assumption:** NGG also used a low local supply assumption in the storage site analysis. This assumed that increases in gas supplies to meet the increased South East demand would come from supply sites of minimal interaction.²³ As with the power station analysis, NGG assumed a minimum flow level of 10.09 mcm/day at Isle of Grain and 27.5 mcm/day at Bacton.

3.25. **Capacity increments:** NGG modelled three capacity increments. The first two increments are based on the individual capacity requirements of the two potential projects; 352.73 GWh/day and 656.95 GWh/day respectively. The third increment is based on the combined capacity requirements of the two projects; 1009.68 GWh/day.

Ofgem's view

3.26. In our view, NGG's proposed approach of introducing a 'banded' revenue driver to accommodate the potential CCGT incremental capacity signals, and a revenue driver specific to the potential incremental capacity signals at the proposed storage site developments, is appropriate. The banded approach will mean that the revenue driver value will not need to be reset to adjust for the actual amount of incremental capacity booked. This will provide NGG with an appropriate level of certainty regarding remuneration of its investment and ensure that the release of the incremental capacity is not subject to delay. We are content that the bespoke approach to setting the storage site revenue driver is appropriate given the less generic nature of the storage site developments.

3.27. We consider that the modelling assumptions NGG has used in modelling the reinforcement requirements of the proposed CCGT developments are appropriate. We acknowledge the importance of differentiating between interactive and non-interactive demand in establishing reinforcement costs, although we consider that as part of the future development of a Generic Revenue Driver methodology it would be appropriate for NGG to provide more transparency regarding the criteria for defining interactive and non-interactive points on the NTS.

3.28. For the storage site analysis, we consider it is appropriate for NGG to adopt the 400 mcm/day demand level. Enduring Annual Exit (Flat) capacity is a firm

²² Flex capacity flow data is derived from the 2010 Distribution Network (DN) Planning Data Submissions under the UNC Offtake Arrangements Document (OAD) Section H

²³ St Fergus, Teesside and Barrow



Determining revenue drivers for South East exit capacity

capacity product. Should storage site developers book this incremental capacity in the 2012 application window they will have the right to offtake gas 365 days a year. It is unlikely that they would offtake their full capacity holding on a peak day, but it is possible both developments may have a fast cycle capability and so, in our view, the 400 mcm/day level is a reasonable proxy for the demand level under which they could operate if the business model is designed to respond to short term gas price changes.

4. Cost estimation

Chapter Summary

This chapter summarises the results of the network modelling undertaken by NGG, sets out the unit cost assumptions we propose to apply to the reinforcement requirements established, and presents how this data translates into proposed £/capacity unit amounts.

Question 1: Do you agree that adopting the unit cost assumptions used by NGG in its TPCR4 rollover business plan submission is appropriate for deriving the revenue driver values?

Question 2: Do you agree that it would be appropriate to incentivise NGG to seek a contractual solution, where feasible, to meet some of the South East incremental capacity signals?

Reinforcement analysis

4.1. Using the methodology and modelling assumptions described in Chapter 3, we requested that NGG present its analysis of the reinforcement necessary to support the capacity increments modelled as follows:

- Additional compressors
- Additional NTS pipelines (by diameter and length)
- Additional gas telemetry equipment and associated cost
- Any other relevant work and associated cost

4.2. A list of the projects associated with each capacity increment was provided by NGG as part of this request. This information has been reviewed by us and by our consultants Poyry, who have been assisting with the assessment of NGG's business plan investment proposals for RIIO-T1. Publication of specific information on the projects concerned is considered commercially sensitive by NGG ahead of commissioning.

4.3. The cost of the reinforcement was calculated by applying unit cost figures to the different reinforcement works required. The unit cost assumptions (UCAs) used

Determining revenue drivers for South East exit capacity

are the same as the UCAs used by NGG in its TPCR4 rollover and RIIO-T1 business plan submissions²⁴.

4.4. Applying these unit costs to the reinforcement projects identified by the modelling analysis, NGG presented the incremental costs for the potential CCGT developments and the storage site developments respectively. Two sets of incremental costs for the storage site projects have been presented to take account of the two national demand assumptions used in the storage site modelling analysis. This data, alongside the monthly revenue driver values²⁵ associated with these capacity increments, is presented in tables [4] and [5] below.

Table 4: CCGT power station incremental costs and monthly revenue driver values in £m in 2009/10 prices

Increment (GWh/day)	Marginal cost	Cumulative cost	Revenue driver value ²⁶
50	129.9	129.9	0.0222
100	126.6	256.5	0.0217
150	141.0	397.5	0.0237
200	141.8	539.3	0.0265
250	160.1	699.4	0.0274

Table 5: Storage site incremental costs and monthly revenue driver values in £m in 2009/10 prices

Project	Increment (GWh/day)	400 mcm/day		350 mcm/day	
		Cost	Monthly revenue driver value	Cost	Monthly revenue driver value ²⁷
Site 1	353	450.2	0.0109	429.2	0.0104
Site 2	657	743.5	0.0083	792.9	0.0102
Site 1 and 2 combined	1010	1093.7	0.0085	1176.4	0.0093

²⁴ Revenue driver values set during TPCR4 were set using TPCR4 unit cost assumptions. It is possible that revised values for these revenue drivers may be set to take account of up to date unit cost assumptions following the conclusion of RIIO-T1. Such revisions, if implemented, would apply to any incremental capacity booked after 1 April 2013.

²⁵ The monthly revenue driver value is derived as follows: total reinforcement costs for each load are derived.. An average incremental cost between adjacent increment sizes is then calculated and annuitized assuming a pre-tax rate of return of 6.25% (weighted average cost of capital (WACC) from TPCR4), OPEX allowance of 1% and straight line depreciation over 45 years. The annuitization factor is 0.10272. This is then divided by 12 to produce the monthly revenue drivers in the licence and divided by the increment size to produce the unit revenue driver.

²⁶ Note the monthly revenue driver by increment is applied in a tax banded way. This means that the first 50 GWh/d of capacity release attracts 0.0222 £m per GWh and the second 50 GWh/d of capacity release attracts 0.0217 £m per GWh/d etc.

²⁷ As previous footnote the first 353 GWh/d of capacity release attracts 0.0100£m per GWh/d and the additional 304 (657-353) GWh/d of capacity release attracts 0.0102 £m per GWh/d

Contractual solutions

4.5. As indicated in Chapter 2, in setting previous revenue drivers – Barking and Coryton for instance - we also included a downward adjustment factor to take account of possible contractual solutions to deliver the incremental capacity. Where NGG is able to agree a contractual solution – such as contracting with a network user not to take gas on peak days – at a cost less than the value of the adjusted revenue driver, NGG keeps the surplus and consumers benefit through reduced investment costs.

4.6. NGG considers that it is likely that a large number of days of supply-side increases or demand-side reductions would be required to accommodate any of the incremental exit capacity requests under consideration and that a contractual solution may be difficult to achieve in practice without risk of distortion of the market. Given the size of the incremental capacity requests, NGG considers the potential for contractual solutions to mitigate the need for the storage site investment to be virtually nil, and, for the power stations, to be very low.

4.7. In our view it would be appropriate to maintain an incentive on NGG to evaluate the potential for efficiency savings through contractual solutions where such opportunities are available. We recognise NGG's view of the probability that contractual solutions will be available, therefore we do not propose to make an ex-ante adjustment to the revenue driver values, but we would be prepared to modify the Licence to adjust the values downwards in the event that contractual solutions became available after the capacity is booked.

4.8. An adjustment factor value of 0.8 was used to account for potential contractual solutions in setting previous revenue drivers. To maintain consistency with previous revenue driver adjustments we propose making the same adjustment for both of the proposed South East revenue driver values should contractual solutions become available. We expect NGG to keep us informed of their view on the availability of contractual solutions as development of the projects progresses.

5. Way forward

Chapter Summary

We use this brief chapter to explain our proposed next steps in establishing revenue driver values in NGG's licence in respect of the potential South East incremental exit capacity signals.

Timeline

5.1. The developers of the proposed South East storage and CCGT projects have indicated to NGG that they would like to be able to book incremental NTS exit capacity in the July 2012 exit capacity application window for use from the gas year commencing on 1 October 2015.

5.2. To install revenue drivers in NGG's licence ahead of the July 2012 application window means that the necessary licence changes must be consulted on and implemented in the first part of 2012.

5.3. Following the conclusion of this consultation, and subject to the responses received, we intend to open a statutory licence modification consultation on proposed revenue driver values in the first quarter of 2012.

Generic revenue driver methodology

5.4. We have previously stated that we planned to develop a generic methodology for deriving entry and exit revenue drivers. We have decided to postpone our work on a generic methodology until after this current consultation. Once in place, the generic methodology would allow for more transparent and standardised determination of a revenue driver for each entry and exit point and therefore should allow a shorter time period between a request to NGG for incremental capacity and a revenue driver being included in the Licence.

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. 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.

1.2. Responses should be received by 31 January 2012 and should be sent to:

James Thomson
Gas Transmission Policy
3rd Floor, Cornerstone, 107 West Regent Street, Glasgow, G2 2BA
Telephone 0141 331 6012
gas.transmissionresponse@ofgem.gov.uk

1.3. 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.

1.4. Respondents who wish their responses to 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.

1.5. Next steps: Having considered the responses to this consultation, Ofgem intends to commence a statutory licence modification consultation on the changes necessary to introduce the revenue drivers discussed in this document. Any questions on this publication should, in the first instance, be directed to:

James Thomson
Gas Transmission Policy
3rd Floor, Cornerstone, 107 West Regent Street, Glasgow, G2 2BA
Telephone 0141 331 6012
gas.transmissionresponse@ofgem.gov.uk

CHAPTER: Three

Question 1: Do you agree with NGG's proposed approach of introducing a 'banded' revenue driver to meet generic CCGT incremental capacity demand in the South East?

Question 2: Do you agree with NGG's proposed approach of introducing a separate revenue driver to meet potential storage site demand for incremental capacity in the South East?

Question 3: Do you agree with the proposed 50 GWh/day increments used in modelling the banded CCGT revenue driver?

Question 4: Do you agree with the network modelling approach adopted by NGG?

Question 5: Do you agree with the data input modelling assumptions adopted by NGG?

Question 6: Do you agree with the 400 mcm/day demand forecast assumption for modelling the storage site reinforcement requirements?

CHAPTER: Four

Question 1: Do you agree that adopting the unit cost assumptions used by NGG in its TPCR4 rollover business plan submission is appropriate for deriving the revenue driver values?

Question 2: Do you agree that it would be appropriate to incentivise NGG to seek a contractual solution, where feasible, to meet the South East incremental capacity signals?

Appendix 2 - Glossary

A

[Aggregate System Entry Point \(ASEP\)](#)

An ASEP is a system point comprising of one or more system entry points.

[Advanced Reservation Capacity Agreement \(ARCA\)](#)

An ARCA is an agreement between a project developer and NGG which allows gas exit capacity to be reserved more than six months in advance first gas date it is required.

B

[Baseline](#)

Baselines define the levels of non-incremental entry and exit capacity that the transmission licensee is obligated to release. Baselines also determine the levels above which incremental capacity is defined.

C

[Combined Cycle Gas Turbine \(CCGT\)](#)

A CCGT plant uses a gas turbine generator to produce electricity and heat. The heat is used to make steam which in turn drives a steam turbine to produce additional electricity.

D

[Direct Connect \(DC\)](#)

A direct connect is a system exit point that offtakes gas directly from the NTS. This definition excludes system exit points defined as Gas Distribution Networks (GDNs).

E

[Exit Capacity Release \(ExCR\) methodology statement](#)

The ExCR methodology statement sets out the methodology that National Grid Gas employ to release NTS exit capacity.

F

[Free Increment](#)

The highest amount of additional capacity that can flow into a particular zone without investment.

G

[The Gas and Electricity Markets Authority \(the Authority / GEMA\)](#)

The Authority is the body established by Section 1 of the Utilities Act 2000 to regulate the gas and electricity markets in Great Britain.

[Gas Distribution Network \(GDN\)](#)

GDNs transport gas from the NTS to final consumers and to connected system exit points. There are currently eight GDNs in Great Britain, four of which are owned by National Grid Gas plc, and four of which were sold by Transco plc (now National Grid Gas plc) to third party owners on 1 June 2005.

I

[Incremental Entry Capacity](#)

Entry capacity in addition to the baseline which by NGG releases for allocation. Obligated Incremental Entry Capacity is capacity which has been signalled to be released as a result of Quarterly System Entry Capacity (QSEC) auction.

[Incremental Exit Capacity](#)

In the transitional period this is exit capacity which is in excess of existing system exit capacity. In the enduring period this is exit capacity in excess of obligated levels.

L

[Least Helpful Supply Substitution](#)

This is an approach to determine the level of baselines which seeks to identify the maximum capacity that could be released at each entry point at system peak. It can be characterised by increasing the supply at the entry point being investigated whilst reducing supply across other entry points in order to keep the NTS balanced. Supply is reduced at other entry points according to which has least benefit to the NTS in terms of incurring lower network reinforcement costs, with the least helpful being reduced first. This is likely to be the entry point which is geographically furthest from the one under investigation.

[Liquefied Natural Gas \(LNG\)](#)

LNG is natural gas that has been converted to liquid form for ease of transport or storage.

N

[National Grid Gas \(NGG\)](#)

The licensed gas transporter responsible for the gas transmission system, and four of the regional gas distribution companies.

[National Transmission System \(NTS\)](#)

The high pressure gas transmission system in Great Britain.

O

[Ofgem](#)

Ofgem is the Office of Gas and Electricity Markets, which supports the Authority.

[One in Twenty Obligation](#)

This is a security standard which requires the licensee to have a pipeline network which meets peak aggregate daily demand at levels which would be expected to occur in one year in twenty years when considering the historical weather data for at least the previous 50 years, and other relevant factors.

[Operating Expenditure \(OPEX\)](#)

OPEX is the expenditure that a business incurs as a result of normal business operations.

Q

[Quarterly System Entry Capacity \(QSEC\)](#)

This is firm NTS Entry Capacity which may be bid for in the QSEC Auctions and registered as held by a user for each day in a particular calendar quarter. Entry capacity is sold via QSEC Auctions (currently held over 10 business days (subject to early closure rules) in March each year (Y)). At these, capacity is offered at each aggregate system entry point in advance of actual usage for gas years (Y plus 2) to (Y plus 16)²⁸.

R

[Regulated Asset Value \(RAV\)](#)

The value ascribed by Ofgem to the capital employed in the licensee's regulated business (the 'regulated asset base'). The RAV is calculated by summing an estimate of the initial market value of each licensee's regulated asset base at privatisation and all subsequent allowed additions to it at historical cost, and deducting annual

²⁸ The gas and capacity year runs from October to September each year.

depreciation amounts calculated in accordance with established regulatory methods. These vary between classes of licensee. A deduction is also made in certain cases to reflect the value realised from the disposal of assets comprised in the regulatory asset base. The RAV is indexed to the Retail Price Index in order to allow for the effects of inflation on the licensee's capital allowances for the regulatory depreciation and also to allow for the return investors are estimated to require to provide the capital.

Revenue Driver

A means of linking revenue allowances under a price control to specific measurable events which are considered to influence costs. An example might be to allow a specified additional revenue allowance for each GWh/day of new entry capacity to the NTS. Revenue drivers are used by Ofgem to appropriately increase the revenue allowances to NGG when increases in its capacity obligations are accepted.

RIIO-T1

RIIO-T1 will be the transmission price control which will succeed the fourth transmission price control. RIIO stands for Revenue = Incentives + Innovation + Outputs.

S

Substitution of Entry Capacity

As part of TPCR4, which covered the period 2007-2012, NGG is obliged to facilitate the permanent substitution of baseline capacity from one or more entry points to another entry point to meet the demand for incremental obligated entry capacity.

System Operator (SO)

The SO has responsibility to construct, maintain and operate the NTS and associated equipment in an economic, efficient and co-ordinated manner. In its role as SO, NGG is responsible for ensuring the day-to-day operation of the transmission system.

T

Ten Year Statement (TYS)

Special Condition C2 (Long Term Development Statement) requires NGG to annually publish a ten-year forecast of NTS usage and likely developments that can be used by companies, who are contemplating connecting to the NTS or entering into transport arrangements, to identify and evaluate opportunities.

Transmission Owners (TO)

These are companies that hold transmission owner licences. NGG is the gas TO.

Fourth Transmission Price Control Review (TPCR4)



Determining revenue drivers for South East exit capacity

TPCR4 established the price controls for the transmission licensees and took effect in April 2007 for a 5-year period. The review applies to the three electricity transmission licensees, National Grid Electricity Transmission (NGET), Scottish Power Transmission Limited (SPTL), Scottish Hydro Electric Transmission Limited (SHETL) and to the licensed gas transporter responsible for the gas transmission system, NGG.

U

Unit Cost Allowance (UCA)

These represent the costs NGG can be reasonably expected to incur when undertaking additional investment to deliver incremental capacity.

Uniform Network Code (UNC)

As of 1 May 2005, the UNC replaced NGG's network code as the contractual framework for the NTS, GDNs and system users.

Appendix 3 - 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:

Andrew MacFaul
Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk