

Potential new System Operator quality of information incentive schemes for National Grid Gas

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Overview:

As system operator (SO), National Grid Gas (NGG) is responsible for ensuring the efficient and economic operation of the National Transmission System (NTS). This role includes providing gas demand forecasts, and the delivery of gas market operational data through its website. In winter 2005/06, the accuracy of NGG's gas demand forecasting data and performance of its website were subject to criticism from certain gas market participants who rely on this information. Customers will benefit from improvements in the accuracy of gas demand forecasting data provided by NGG, and the performance of NGG's website. We therefore propose implementing new incentive schemes to promote improvements in NGG's performance in these areas, ahead of winter 2006/07. This document sets out our initial proposals for these schemes.

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Target Audience: This document will be of interest to generators, suppliers, customers and other interested parties.

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Context

National Grid Gas (NGG) is the system operator (SO) and transmission operator (TO) for the gas transmission system in Great Britain (GB), by virtue of it holding the gas transporter licence in respect of the National Transmission System (NTS). In the context of this role, NGG publishes a range of gas market operational data on an ongoing basis that are used by market participants to inform commercial decisions. Ahead of winter 2006/07, we consider customers will benefit from improvements in the accuracy of gas demand forecasting data provided by NGG, and the performance of NGG's website.

To encourage NGG to deliver these improvements ahead of what the market is predicting may be a difficult winter, we propose implementing two new SO incentive schemes, applying to the period 1 October 2006 to 31 March 2007. This document sets out our initial proposals for these schemes.

Associated Documents

- Ofgem presentation: Looking ahead to Winter 2006, Winter Outlook Consultation 06/07

http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/15124_1_OFGEM_WOC_slides_final_no_notes.pdf?wtfrom=/ofgem/work/index.jsp§ion=/areasofwork/wholesalemarketmonitoring

- Ofgem presentation to Demand Side Working Group: Improving NG's website performance and demand forecasting accuracy, 20 April 2006

http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/14765_Ofgem_Presentation_website_and_demand_TD.pdf?wtfrom=/ofgem/work/index.jsp§ion=/areasofwork/wholesalemarketmonitoring/wholesalemarketmonitoring01

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Summary

In winter 2005/06, National Grid Gas's (NGG) performance, both in terms of the accuracy of its gas demand forecasts and the performance of its website in delivering critical gas market operational data, received criticism from certain market participants. Feedback from market participants (supported by our own analysis) suggests that improvements in the quality of NGG's service in both of these areas may deliver significant benefits to customers.

Looking forward, market indicators suggest that winter 2006/07 may be even more difficult than winter 2005/06 (with gas forward prices reaching 90p/therm for January 2007, representing the highest gas forward prices on any international market). As a consequence, we consider that the quality of gas market information provided by NGG may be of even greater importance to market participants this coming winter than was the case in winter 2005/06. We are therefore proposing to introduce measures in advance of this winter that will give NGG a commercial incentive to improve the accuracy of its gas demand forecasts and the performance of its website.

This document outlines our initial proposals for these two new incentive schemes.

Background

NGG publishes a wide range of gas market operational data on its website. Feedback received from market participants suggests that the most important of these data are gas demand forecasts, actual and nominated NTS flows and lineup.

NGG's day-ahead gas demand forecasting accuracy over winter 2005/06 was 3.6% on average (i.e. forecasting error expressed as a percentage of actual demand). However, daily absolute errors in these forecasts were sometimes large, and there was a tendency for demand to be over-forecast on "tight" days (i.e. days in which the level of expected gas demand approaches the level of available gas supply).

The performance of NGG's website over the same period is more difficult to quantify. However a review of complaints received by Ofgem regarding NGG's website, an independent survey of NGG's website performance, and NGG's own data (especially regarding timeliness of data publication) suggests there is significant room for improvement in the performance of NGG's website.

Our analysis suggests that customers may benefit significantly from improvements in NGG's performance in both of these areas. In particular, we consider that increases in the accuracy of NGG's day-ahead gas demand forecasts (and the delivery of these forecasts to market participants through NGG's website) may lead to large benefits to gas market participants, and as a consequence to customers.

Initial Proposals

We propose two alternative options for each of the two incentives. Option 1 in each instance offers the potential for upside incentive payments only for NGG. In contrast, Option 2 offers both the potential for upside incentive payments and downside cost to NGG. The options proposed for each incentive are outlined below.

Potential demand forecasting incentive payments

| | Improvement on winter 2005/06 performance | | | |
|-----------------|---|------------------------|-----------------------|-------------------------|
| | <i>Upside</i> | | | <i>Downside</i> |
| | <i>0% (Benchmark)</i> | <i>5% (Target)</i> | <i>100% (Cap)</i> | <i>-5% (Collar)</i> |
| Option 1 | £0m | £0.8m | £4.6m | £0m |
| Option 2 | £0m | £1.6m | £9.2m | -£1.6m |

Potential website performance incentive payments

| | Improvement on winter 2005/06 performance | | | |
|-----------------|---|-------------------------|-----------------------|-------------------------|
| | <i>Upside</i> | | | <i>Downside</i> |
| | <i>0% (Benchmark)</i> | <i>27% (Target)</i> | <i>100% (Cap)</i> | <i>-5% (Collar)</i> |
| Option 1 | £0m | £1m | £1.5m | £0m |
| Option 2 | £0m | £2m | £3m | -£2m |

In order to provide an incentive on NGG to deliver significant performance improvements in time for this winter, and in light of the size of potential benefits to customers from any improvement in NGG's demand forecasting accuracy, we consider there are exceptional reasons why an "upside only" incentive scheme may be appropriate. We ask for the views of respondents on the option they consider most appropriate for this winter.

We propose that the incentive schemes, irrespective of the option chosen for each, will apply from 1 October 2006 to 31 March 2007. After this date, we will consider the most appropriate form for any ongoing quality of service incentive in these areas (potentially more closely resembling the quality of service incentives in place for the electricity distribution network operators).

Next steps

We welcome views from respondents on all aspects of these proposals. On the basis of responses received to this consultation, we will prepare final proposals for these incentives, including a statutory notice containing draft licence conditions that reflect our proposed changes. We intend to publish final proposals and the associated statutory notice in July 2006.

1. Introduction

Chapter Summary

This chapter outlines the process we have followed in developing initial proposals for two new SO incentive schemes. These have been designed to give NGG an incentive to improve the quality of its gas demand forecasts and the performance of its website (used by NGG to deliver gas market operational data to market participants). We also outline the structure of the document, and invite views from interested parties on the proposals set out in this document.

Question

There are no specific questions in this chapter

Introduction

1.1. National Grid Gas (NGG) is the system operator (SO) for the gas transmission system in Great Britain (GB), by virtue of it holding the gas transporter licence in respect of the National Transmission System (NTS)¹. NGG therefore has licence obligations to operate the NTS in an efficient, economic and co-ordinated manner².

1.2. To ensure that the interests of customers are protected, NGG's business is regulated. The most prominent form of this regulation focuses on the level of cost NGG is allowed to charge to customers through periodic price controls (most commonly known as 'RPI-X' regulation). This regulatory framework has been very successful in encouraging efficiency, for example reducing gas transportation charges in real terms by 41% since 1994³.

1.3. The RPI-X regulatory framework is effective at delivering benefits to customers through reductions in cost. However, this approach can mean that in some instances, the quality of service offered by businesses regulated under this approach can be lower than customers want. An example of this is over winter 2005/06, when NGG's performance was criticised by certain market participants, both in terms of the accuracy of its gas demand forecasts, and the performance of its website.

1.4. Some market participants (predominantly large industrial and commercial gas users) have indicated to us that the gas demand forecasts and other key gas market operational data published on NGG's website are of commercial importance to them. On the basis of these comments (and the supporting analysis presented in Chapter 3 of this document) we believe that improvements in the accuracy of NGG's gas demand forecasts and in the performance of its website may deliver significant benefits to large customers, the wider market and ultimately to customers.

¹ Within this document, unless otherwise stated, NGG refers to National Grid Gas plc in its capacity as the holder of a gas transporter licence in respect of the National Transmission System.

² Special Condition C5 of the gas transporter licence.

³ "Our Energy Challenge: Ofgem's response", Ofgem, May 2006

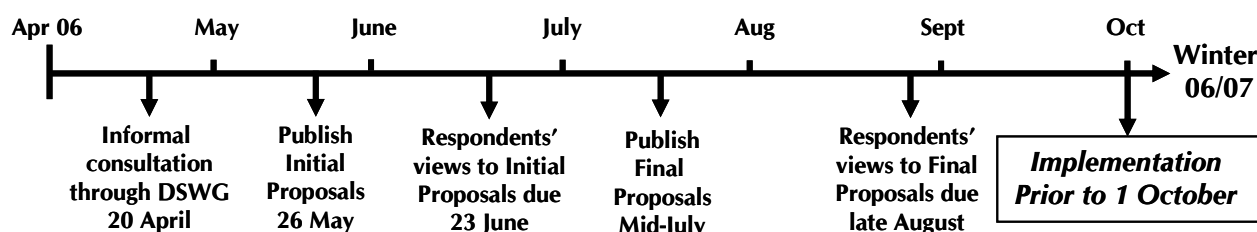
1.5. This is particularly the case looking forward to winter 2006/07. Market indicators suggest that this coming winter may be even more difficult than winter 2005/06 (with gas forward prices reaching 90p/therm for January 2007, representing the highest gas forward prices on any international market). As a consequence, we consider that the quality of gas market information provided by NGG may be of even greater importance to market participants in winter 2006/07 than was the case in winter 2005/06.

1.6. We are therefore proposing to introduce measures that will give NGG a commercial incentive to improve the accuracy of its gas demand forecasts and the performance of its website, exploiting "quick wins" in quality of service improvements ahead of this winter. As such, this document presents initial proposals for two new SO incentives, specifically designed to encourage quality of service improvements in these two areas. Two options are presented for each incentive, and respondents are asked to provide their views on the options they consider most appropriate.

1.7. Given that these incentives are specifically designed to deliver "quick wins" in advance of this winter, we do not consider these are an enduring approach to delivering improvements in NGG's quality of service. Instead, we propose reviewing these incentives before 31 March 2007, potentially with a view to introducing quality of service incentives that more closely represent those that currently apply to the electricity Distribution Network Operators (DNOs).

Process for setting these incentive schemes

1.8. The process we are following in developing these incentives is set out below:



1.9. In order to deliver improvements in time for winter 2006/07, we believe that these incentive schemes will need to be implemented before the end of September 2006. This will allow NGG sufficient time to both plan and implement projects designed to improve the quality of the service it provides in both areas.

1.10. Prior to the publication of this document, we undertook informal consultation on these issues through a presentation delivered to the Demand Side Working Group (DSWG), and invited views on the issues raised in this presentation from both DSWG attendees and other market participants⁴. To encourage feedback, we also issued a pro forma to DSWG attendees and other market participants (circulated by the Joint

⁴ The presentation was delivered to DSWG on 20 April, and is available on Ofgem's website at <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/wholesalemarketmonitoring/wholesalemarketmonitoring01>

Office), that indicated the areas on which feedback would be especially valuable. This is included for reference in Appendix 2⁵. Responses to this pro forma, and other feedback received from customers on these issues are referred to in this document where relevant.

1.11. Subsequent to this informal consultation, we have had discussions with NGG to understand in greater detail the accuracy of its gas demand forecasts and the performance of its website. We have also undertaken analysis to assess the potential benefits to customers of improvements in both of these services.

1.12. The initial proposals presented in this document have therefore been informed by a combination of informal consultation with market participants, customer feedback, discussions with NGG and our own analysis of potential benefits to customers of improving NGG's quality of service.

Structure and approach

1.13. Chapter 2 of this document provides an overview of the scope of demand forecasts provided by NGG, and the breadth of gas market operational data published on NGG's website. This chapter also presents an overview of NGG's recent performance in both areas, as well as providing background on comparable quality of service incentives. Chapter 3 summarises analysis we have undertaken regarding the potential extent of benefits to customers of improvements in the accuracy of NGG's demand forecasting, and the performance of NGG's website. Finally, Chapter 4 describes our initial proposals for the two new SO incentives in detail.

Way forward

1.14. We welcome the views of all interested parties regarding all aspects of these initial proposals. In light of the informal consultation we have already undertaken, and the urgent need to address the issues outlined in this document in advance of winter 2006/07, we ask that responses should be received no later than 23 June 2006. Details of how to respond to us can be found in Appendix 1⁶.

1.15. On the basis of responses received to this consultation, we will prepare final proposals for these incentives, including a statutory notice containing draft licence conditions that reflect our proposed changes. We intend to publish final proposals and the associated statutory notice in July 2006.

⁵ Five responses were received to this pro forma survey.

⁶ Appendix 9 provides details of how to give feedback to us on the manner in which this consultation has been conducted.

2. NGG's provision of gas market information as System Operator

Chapter Summary

This chapter provides an overview of NGG's recent performance regarding the quality of its gas demand forecasts, and the delivery of gas market operational data through NGG's website.

Question

There are no specific questions in this chapter

2.1. In this chapter we present:

- a summary of the gas demand forecasting and related website delivery services provided by NGG, and
- an overview of NGG's recent performance regarding the quality of these services.

Services provided by NGG

2.2. The UNC requires NGG as gas SO to undertake a wide range of functions and roles. In this chapter we focus specifically on those services relating to gas demand forecasting and website delivery. These are described in turn below.

Gas demand forecasting

2.3. The Uniform Network Code (UNC) currently requires NGG to notify forecast daily gas demand levels to market participants for the relevant gas day at both the day-ahead stage (D-1) and within-day⁷.

2.4. NGG currently provides forecasts of demand (in mcm) for:

- each of the Local Distribution Zones (LDZs)
- the sum of all LDZ forecast demand, and
- total NTS throughput for the gas day⁸.

2.5. For a given gas day, the UNC requires the first demand forecast to be notified to Users by 14:00 at day ahead⁹. The UNC requires a further five demand forecast

⁷ Part 5, Section H of the Transportation Principal Document (TPD) of the UNC. A 'gas day' is from 06:00 to 05:59 on the following calendar day.

⁸ This includes all LDZs, Storage Injections, Interconnectors and NTS direct feed Very Large Daily Metered Consumers (VLDMC) demands.

⁹ The term 'Users' is a defined term in the UNC.

updates by NGG, the last of these being at 21:30 on the gas day to which the forecast relates¹⁰.

2.6. NGG aims to exceed the requirements of the UNC, having a stated objective of publishing a Forecast Demand report (SISR03) on its website that updates on eight occasions for each gas day¹¹. The first of these is at 13:00 D-1 (i.e. one hour ahead of the required publication time as specified in the UNC), with the last being at 24:00 on the gas day.

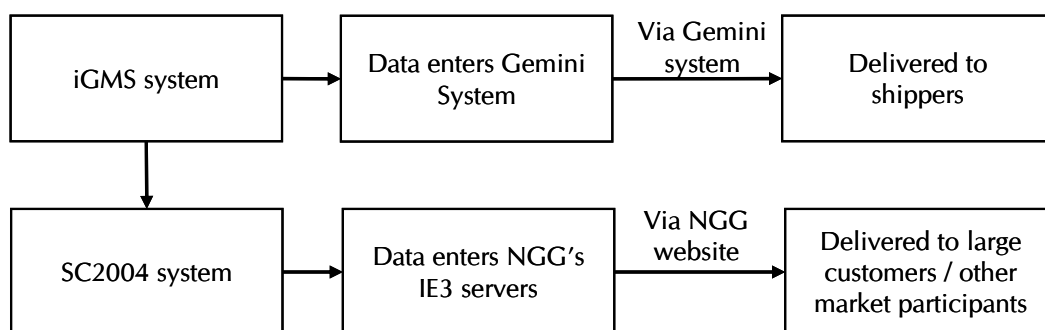
Website delivery

2.7. NGG's website provides a range of operational data regarding the gas market. A summary of the information currently provided on NGG's website and the frequency with which it is updated is summarised in Appendix 3.

2.8. The data published on NGG's website relates to a number of critical areas of gas market operation, including actual and nominated flows on the NTS, changes in linepack and levels of forecast demand. Feedback we have received from customers has indicated that these data are of critical importance to market participants.

2.9. It is important to note that the majority of gas market operational data provided on NGG's website is also provided to shippers through the Gemini system¹². As a consequence, it is those market participants that do not have access to Gemini (e.g. large industrial gas customers) that value the data published on NGG's website most highly. A simple schematic outlining the data flows of gas market operational data to both the Gemini system and NGG's website is illustrated in Figure 1 below.

Figure 1: Delivery of gas market operational data to market



¹⁰ Part 5, Section H of the TPD requires the Transporter to notify total system demand forecasts not later than "14:00 hours, and 02:00 hours on the Preceding Day and 12:00 hours, 15:00 hours, 18:00 hours and 21:30 hours on the Gas Flow Day."

¹¹ This can be found on NGG's website at: <http://www.nationalgrid.com/uk/Gas/Data/EDR/>

¹² Through Gemini, shippers have access to forecast NTS total demand, opening linepack, projected closing linepack and own demand (including latest NDM allocation from the latest demand attribution run). System physical flow can also be derived (though is not available specifically).

NGG's recent performance

2.10. In winter 2005/06, the quality of both NGG's gas demand forecasting accuracy, and website performance was criticised by certain market participants. Some market participants (e.g. large industrial and commercial users, who rely on NGG's service provision in these areas to make commercial decisions) have stated that this level of performance resulted in significant costs to their businesses.

Daily gas demand forecasting

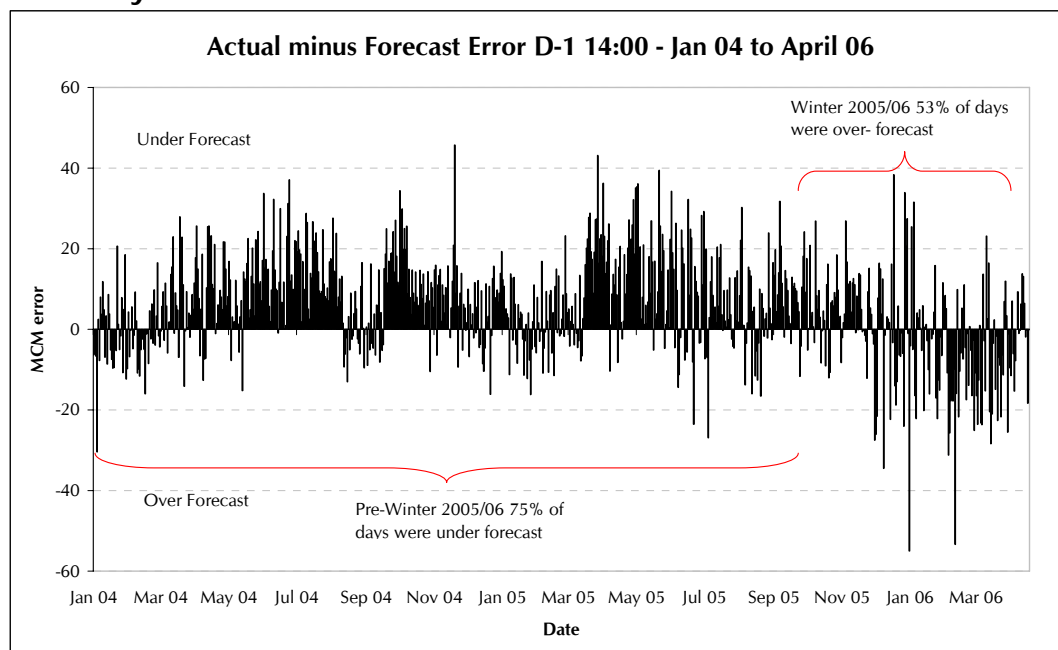
2.11. This section presents an overview of NGG's recent demand forecasting performance. The analysis presented focuses on:

- overall performance, and
- evidence of potential forecasting trends.

Overall performance

2.12. Figure 2 below summarises NGG's day-ahead (14:00) demand forecasting performance from January 2004 to April 2006¹³.

Figure 2 - Actual daily demand minus D-1 14:00 demand forecast error from 1 January 2004 to 31 March 2006



2.13. This graph indicates, on a daily basis, the extent of error in the day ahead demand forecast compared to actual daily demand¹⁴. It shows that:

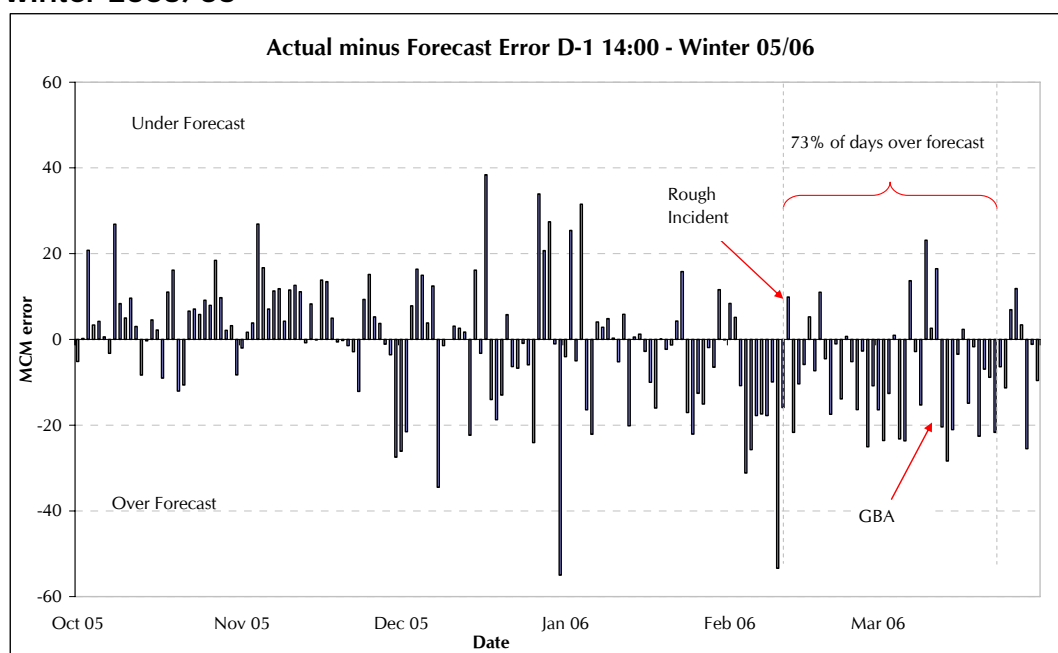
¹³ Forecasting error is presented as "actual demand minus forecast demand", therefore over-forecasts are indicated by a negative value, and under-forecasts as a positive value.

- over the period 1 January 2004 to 31 March 2006 NGG's D-1 14:00 gas demand forecast absolute error was on average 3.8% (equal to a daily average volume of 10.9mcm), and
- for the most recent formula year (1 April 2005 to 31 March 2006), performance declined, with an average forecast error of 4.3% (calculated as being total daily error in the D-1 forecast divided by total actual daily demand over the period).

2.14. NGG's performance over winter 2005/06 is presented in Figure 3. This shows:

- average daily demand forecast error over this period was relatively better than over the period 1 April 2005 to 31 March 2006 at an average error of 3.6% (equal to a daily average volume of 11.2mcm), but
- this average error statistic masked large swings in the D-1 forecast over the period, from a maximum over-forecast of 55mcm (18.3% error) to a maximum under-forecast of 38mcm (10.8% error) ¹⁵.

Figure 3 - Actual daily demand minus D-1 14:00 demand forecast error over winter 2005/06



Potential forecasting trends

2.15. We have also undertaken analysis to look for evidence of any consistent over- or under-forecasting of demand at the day-ahead stage.

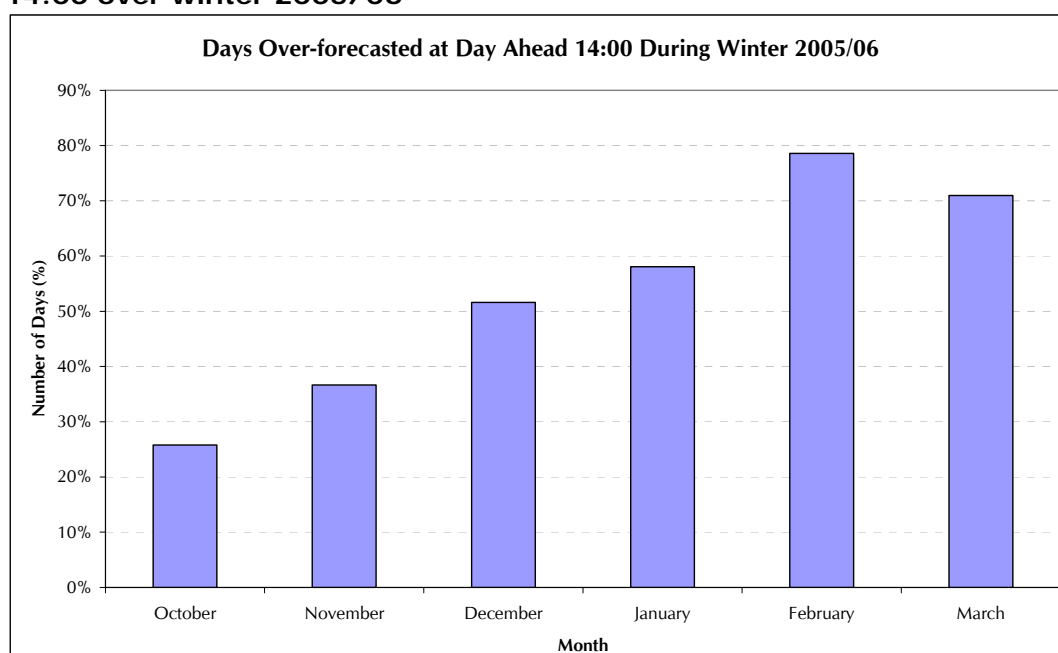
¹⁴ Note that in Figures 2 and 3, under-forecasts are shown as "positive" errors, and over-forecasts are shown as "negative" errors.

¹⁵ On 31 December 2005 and 17 December 2005 respectively.

2.16. Although we did not find evidence of a consistent trend in demand forecasts over the period January 2004 to April 2006 taken as a whole (see Figure 2), we have found that there is evidence of consistent over-forecasting of demand on 'tight days' (when forecast demand is approaching the level of forecast available supply), particularly over the period following 16 February 2006¹⁶.

2.17. Figure 4 illustrates this potential trend, showing that in February and March 2006, day-ahead gas demand forecasts over-estimated the level of actual demand on 79 per cent and 71 per cent of days respectively. Analysis for the 26 days following the Rough incident shows that the average error was a 7mcm over-forecast¹⁷. NGG has indicated that the key reason for the over-forecasting of demand over this period was an over-estimate of the level of gas demand by large users (i.e. an under-estimate of the level of demand side response).

Figure 4 - Proportion of days system gas demand was over-forecast at D-1 14:00 over winter 2005/06



Website performance

2.18. In this section we provide an assessment of the recent performance of NGG's website. This is done through:

- a summary of complaints relating to NGG's website performance received by Ofgem in winter 2005/06
- the description of an independent study of NGG's website, and

¹⁶ The Rough storage facility was closed on 16 February 2006 following an incident, significantly reducing the volume of available gas in store.

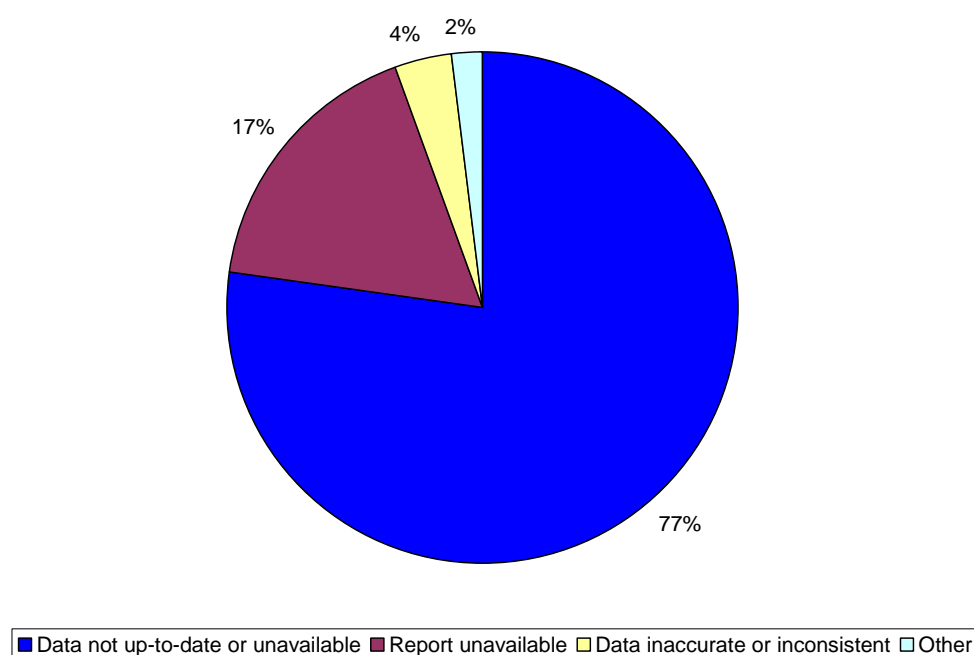
¹⁷ This is a straight average of over- and under-forecasts errors during the 26 days following the Rough incident.

- the analysis of data provided by NGG on the performance of its own website.

Complaints made to Ofgem concerning website delivery

2.19. During Winter 2005/06, Ofgem received 53 complaints (concerning 43 separate instances of website problems) relating directly to the unavailability of key data on NGG's website. The following chart provides a breakdown of the nature of these complaints.

Figure 5: Nature of complaints regarding website performance made to Ofgem during winter 2005/06



2.20. It is apparent from this diagram that the majority of these complaints related to either the unavailability of the website itself, or of data contained within it¹⁸. Analysis of these complaints also suggests that the average duration of reported problems was estimated by the complainants at just over 1.5 hours. On the basis of these complaints and the average reported duration, this suggests that the website was available 98.5 per cent of the time¹⁹.

Comparison to other FTSE 100 companies

2.21. We have also assessed NGG's website performance through comparison of the availability of NGG's website, compared to the availability of the websites of the other FTSE 100 companies. A publicly available survey highlights that between 2 March 2006 and 10 April 2006 the National Grid website:

¹⁸ It is important to note that this analysis is based purely on complaints made by users of the website that were copied to Ofgem.

¹⁹ 98.5 per cent availability is calculated as being:

Total hours during winter less hours of unavailability / Total hours during winter

- was available 98.7 per cent of the time, and
- experienced 9 hours and 40 minutes of downtime per month²⁰.

2.22. On the basis of this survey, NG is ranked 83rd out of the FTSE 100 companies in terms of its website performance.

2.23. Although this is an independent source of availability data, we consider its usefulness is limited, given the relatively short period of time over which NGG's website was assessed. The survey also focused on the availability of the front page of the NGG website and not the part of the website providing gas market operational data. NGG has subsequently indicated to us that the availability of the section of its website providing gas market operational data over the period was significantly higher than 98.7%.

NGG data on website performance

2.24. We also requested data from NGG on both the availability of the gas market operational data published on its website, as well as the extent to which this was updated on a timely basis. The data provided by NGG are outlined in the following sections.

Availability analysis

2.25. Since mid-October 2005, NGG has been using an independent third party specialist website monitoring company to record the availability of its gas market operational data²¹. This data was collected on a continuous basis over the period, and defines availability as being the ability of a user to download website data within 20 seconds.

2.26. The data collected by NGG applied to both the NGG gas home page, and the page containing NTS flow data based on physical nominations²². The results of this monitoring over the period November 2005 to March 2006 are summarised in Table 1 below.

Table 1: Summary of NGG's website availability analysis

| Month | NTSAPF Page | | Gas Home Page | | Combined | |
|------------|-------------|--------------|---------------|--------------|----------|--------------|
| | Downtime | Availability | Downtime | Availability | Downtime | Availability |
| Nov | 00:31:05 | 99.93% | 01:03:18 | 99.85% | 01:34:23 | 99.78% |
| Dec | 01:21:42 | 99.82% | 07:08:13 | 99.04% | 08:29:55 | 98.86% |
| Jan | 00:34:20 | 99.92% | 02:20:39 | 99.68% | 02:54:59 | 99.61% |

²⁰ See the 'WatchMouse Site Performance Index' available on <http://www.watchmouse.com/en/SPI/2006/FTSE100.php>. To compile these results, every 5 minutes, one of the test stations of WatchMouse retrieved the homepage of the relevant website, without graphics, frames etc. This HTML page was expected to download within 8 seconds, without any errors. If that time was exceeded or if an error occurred, it was verified by one of the other test stations. If this station also established an error, it was counted as 'poor availability or not available'.

²¹ Data prepared by Site Confidence, more details of which can be found at <http://www.siteconfidence.co.uk/>

²² Termed "NTSAPF" on NGG's website.

| | NTSAPF Page | | Gas Home Page | | Combined | |
|--------------|-------------|--------|---------------|--------|----------|--------|
| Feb | 00:49:54 | 99.88% | 00:34:00 | 99.92% | 01:23:54 | 99.88% |
| Mar | 01:47:51 | 99.89% | 02:04:15 | 99.72% | 03:52:06 | 99.61% |
| Total | 03:43:10 | 99.89% | 13:10:25 | 99.64% | 16:53:35 | 99.52% |

2.27. On the basis of this analysis:

- the NTSAPF page was available 99.89% of the time (on average)
- the gas homepage was available 99.64% of the time (on average), and
- the combined availability of the two was 99.52 per cent on average²³.

2.28. Given that this data was collected on a continuous basis over winter 2005/06 by a third party, we consider this analysis provides a useful benchmark of the availability of NGG's website over winter 2005/06. More details on our proposed use of this data in calculating a benchmark for winter 2005/06 can be found in Chapter 4.

Timeliness analysis

2.29. NGG has also undertaken analysis to measure the timeliness of information posted on its website last winter. In doing this, NGG focused on the percentage of reports that were delivered within a certain range of either real time or specified publication times. Within this, late and unpublished reports were counted as failures. This analysis was undertaken using system-generated logs produced every five minutes over the period 1 October 2005 to 31 March 2006.

2.30. The analysis focused on those categories of data that the majority of DSWG attendees that provided feedback to Ofgem indicated were of key importance, namely:

- Linepack data (data field NB92)
- Physical flows in the NTS (data field NTSAPF)
- Nominated flows into the NTS (data field NTSAFF), and
- Forecast demand (data field SISR03).

2.31. Timeliness of the first three of these data was measured compared to real time (i.e. whether the relevant data item was updated within 30, 20 or 15 minutes of real time). In contrast, the timeliness of forecast demand data was measured as the percentage of reports published within 30, 20 or 15 minutes of the specified publication times (or whether published on-time).

2.32. NGG's analysis is presented in Table 2, below.

²³ The combined availability statistics are lower than for the separate components because the former relies upon both of the individual elements being available. Therefore, the combined availability figure is reduced in cases when either or both of the individual components are unavailable.

Table 2: Summary of NGG's timeliness analysis

| Report | Frequency of data publication | 30 mins | 20 mins | 15 mins | Real time / 0 mins |
|----------------|---|----------------|----------------|----------------|---------------------------|
| NB92 | Hourly | 80% | 29% | 7% | 0% |
| NTSAPF | Hourly | 79% | 38% | 11% | 0% |
| NTSAFF | Hourly | 86% | 46% | 15% | 0% |
| Average | | 81% | 40% | 12% | 0% |
| SISR03 | D-1: 14:00 and 02:00 Within-day: 12:00, 15:00, 18:00 and 12:30 | 90% | 74% | 68% | 64% |

2.33. This analysis shows that, for the reports relating to linepack and physical / nominated NTS flows, between 7% and 15% of reports are delivered within 15 minutes of real time, improving to between 79% and 86% within 30 minutes of real time.

2.34. For the forecast demand report, the analysis shows that delivery occurs at the specified publication times on 64% of occasions, improving to 90% within 30 minutes of the specified publication time.

3. Benefits to customers of improvements in quality of information provided by NGG

Chapter summary

In this chapter we illustrate the potential benefits to customers of improvements in both the accuracy of NGG's gas demand forecasts and the performance of its website.

Questions

Question 3.1: Do you agree that the scope of potential benefits from improved quality of information is correct?

Question 3.2: Do you agree that the potential benefits from improvements in demand forecasting accuracy are quantified appropriately?

Question 3.3: Do you agree that the benefits from potential improvements in website performance are quantified appropriately?

3.1. In this chapter, we present an overview of the potential benefits to customers of improvements in both the accuracy of NGG's gas demand forecasts, as well as the performance of NGG's website.

Gas demand forecasting accuracy

3.2. We consider that there are two key benefits to customers from improvements in NGG's demand forecasts. These are:

- potential reductions in gas price distortions, and
- potential improvements in the efficiency of system operator balancing actions.

Reduction in gas price distortions

3.3. Different market participants rely on NGG's system gas demand forecasts to varying extents²⁴. However, numerous market participants have reported that NGG's system gas demand forecasts are commercially critical to their businesses, providing an indication at day-ahead of the expected demand/supply balance (with revisions published through the gas day). As a consequence, the day-ahead demand forecasts (and subsequent revisions to these forecasts) may have significant implications for gas prices. As an example, significant over-forecasts of demand will

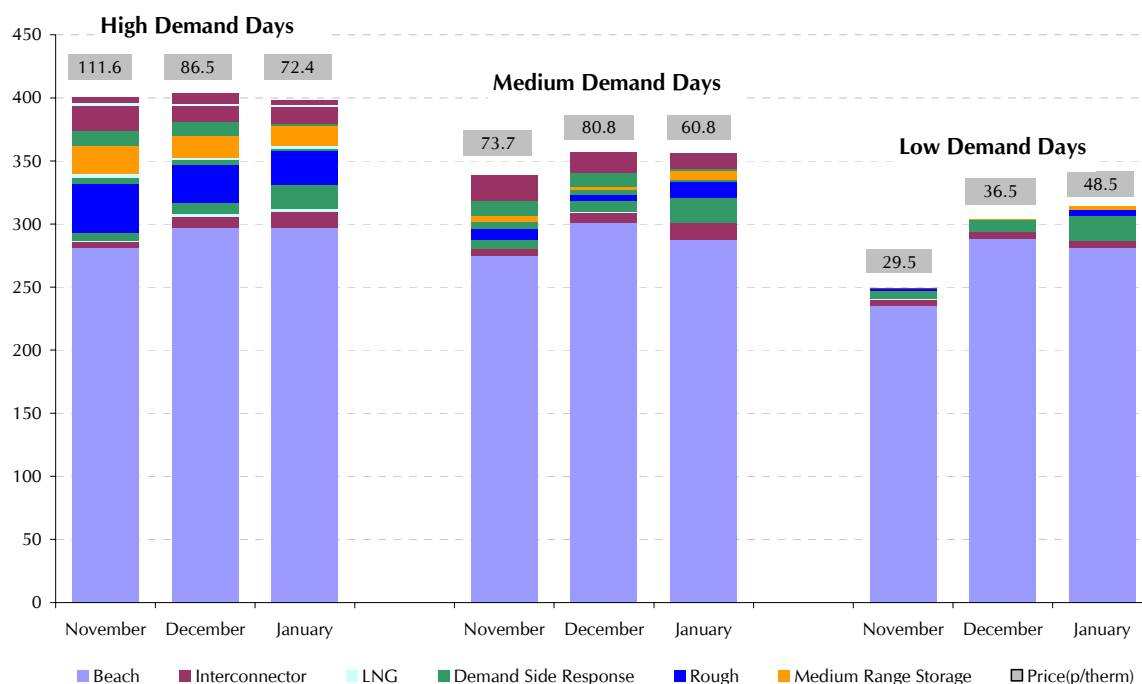
²⁴ For example, large industrial users of gas tend to rely heavily on NGG's system demand forecasts, whereas large gas suppliers (with diversified energy portfolios) tend to use NGG's forecasts to support their own analysis.

tend to increase gas prices (until it becomes apparent that outturn demand is significantly lower than expected)²⁵.

3.4. To assess the potential impact of high expectations of gas demand on the market, it is first important to understand how different sources of gas supply respond to changes in gas prices. At relatively low prices, those sources with relatively low marginal costs of production will deliver gas to the market. However, as prices rise, more expensive sources of supply begin to enter the market. It is therefore possible to define a "merit order" of sources of gas supply, stacked in order from the source of supply with the lowest marginal cost of delivery through to the supply source with the highest marginal cost.

3.5. Analysis of this gas "merit order" for November 2005 to January 2006 is illustrated in Figure 6 below.

Figure 6: Gas "merit order" in winter 2005/06 *



*Source: Ofgem analysis

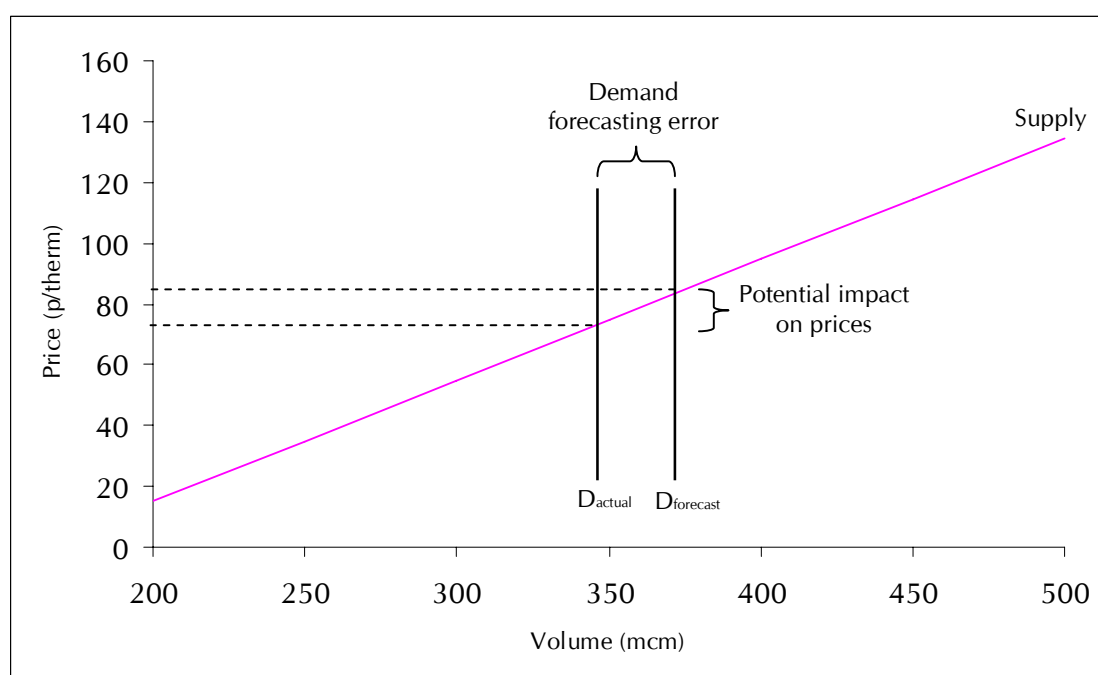
3.6. Figure 6 illustrates how the sources of supply change for three scenarios of daily demand (high, medium and low). On days of low demand, gas supply is almost entirely provided from beach. In contrast, on high demand days, supply from beach is supplemented by gas from more expensive sources, including flows through the interconnector and storage.

²⁵ Note that under-forecasts of demand may also lead to significant costs to customers. For example, a significant under-forecast of demand at day ahead may give some sources of supply and/or demand side response insufficient time to respond to significant increases in levels of forecast demand within-day. Instead, this may result in higher than expected levels of gas demand being met by relatively more expensive sources of supply (or more expensive demand side response).

3.7. Errors in gas demand forecasts can lead to potential distortions in the "efficient" mix of gas supply sources that provide gas on a given day. In particular, expectations that the demand/supply balance on a given day may be tighter than actually transpires may lead to shippers/suppliers either over-contracting for gas, or contracting with sources of supply that are further up the merit order than necessary. Under the over-forecasting of gas demand becomes apparent to market participants, this may lead to relatively more expensive sources of gas supply entering the market, and some market participants contracting for gas at unnecessarily high prices.

3.8. The potential effect of a significant over-forecast of demand on the market is illustrated in Figure 7 below.

Figure 7: Potential implications of demand forecasting errors



3.9. By looking at changes in the daily merit order of gas supply, it is possible to define a supply curve, showing the volumes of gas offered at different prices. We have estimated a supply curve such as this, using winter 2005/06 data. This is shown in Figure 7 as the upward sloping line.²⁶

3.10. We consider that potential market distortions from over-forecasts of demand are likely to be most severe on those days on which demand forecasts are of most importance to market participants - namely "tight" days when the forecast margin of supply over demand is low. In quantifying the impact of these distortions, it is

²⁶ Supply curve estimated using data over the period Oct 1 2005 to March 31 2006, with an accuracy of fit of 48.8%.

therefore most appropriate to analyse days in winter 2005/06 when gas supplies tended to be relatively low compared to demand.

3.11. An example of a period such as this was following the Rough incident on 16 February 2006 leading up to the gas balancing alert on 13 March 2006 (over which gas demand was over-forecast on more than 70% of days at day-ahead). Over the ten days with the highest over-forecast over this period, the average over-forecast at day-ahead was in excess of 21mcm (equating to over 6% of average actual gas demand over the same period).

3.12. The potential impact of an over-forecast such as this on market prices is illustrated in Figure 7. This shows that a 21mcm difference in the expectation of gas demand has the potential to distort the prices at which market participants contract for gas by over 8p/therm on a given day. As an indication of the potential upper bound on this level of distortion, on a demand level of 347mcm (the average actual level of demand over these ten days), this could equate to a maximum potential cost to customers per day of over £10.6m on "tight" days²⁷.

3.13. As stated above, this estimate represents an upper limit on the potential distortionary impact on gas prices of over-forecasting of demand. However, even assuming that distortions to gas prices (as a consequence of over-forecasts of gas demand at day ahead) are experienced on a small number of days across the winter, it is apparent that even a marginal improvement in the accuracy of NGG's demand forecasting accuracy may produce large potential benefits to customers.

Increased efficiency of SO balancing actions

3.14. A further category of potential benefit from enhanced demand forecasting accuracy relates to potential improvements in the efficiency of balancing actions undertaken by the SO.

3.15. As described above, NGG in its role as gas SO is responsible for ensuring that demand and supply for gas on the national network balances on a daily basis. To maintain the balance of demand and supply, the SO monitors gas demand and supply on the network during the day. In the event that the SO considers there may be a significant imbalance between the level of demand and supply for a given day, it will buy or sell on the on-the-day commodity market (OCM) to remove this imbalance.

3.16. The SO uses a variety of information, including its own gas demand forecasts and shipper nomination information, to inform expectations of the demand/supply balance. Therefore, the error in the gas demand forecast may potentially lead to inappropriate balancing actions. For example, an (incorrect) expectation that demand will be significantly higher than supply on a given day may result in the SO purchasing gas on the OCM unnecessarily.

²⁷ This is calculated by multiplying the average actual level of demand over the ten days with the highest over-forecast between 16 February 2006 and 13 March 2006 (347mcm) by 8p/therm (i.e. the maximum potential level of distortion in the price at which gas is contracted, in light of a 21mcm over-forecast in demand).

1.4. Improved forecasting accuracy will both assist the efficient operation of the gas market and the effective management of the gas demand and supply balance, especially under an emergency situation or Gas Balancing Alert (GBA). At the very extreme, and over-forecast of demand could lead to the unnecessary declaration of a GBA.

3.17. Improvements in the efficiency of SO balancing actions may also have commercial benefits for customers. At present, the price component of NGG's residual gas balancing incentive encourages NGG to take balancing actions at prices close to the system average price (SAP). Its incentive payments/receipts are then determined using a sliding scale incentive depending upon the spread of the prices of its own trades as a proportion to SAP.

3.18. Whilst NGG has an obligation to operate the system in an economic and efficient manner, NGG does not have a direct incentive to limit the overall cost of the balancing actions that it takes. This means that if NGG takes inefficient balancing actions based on incorrect demand forecasts, it will only face financial exposure arising from such actions to the extent that the associated price spread of the trades vary in proportion with SAP and to the extent that these actions cause changes in linepack (hence NGG's own exposure to these costs may be limited). However, the costs associated with such actions will in all cases be faced by market participants as they are recovered via balancing neutrality. As a consequence, an overall improvement in the efficiency of SO balancing actions may have significant commercial benefits for customers.

Website performance

3.19. Feedback received from customers over last winter suggests that improvements in the performance of NGG's website will deliver significant benefits to customers. In addition, recent responses to case studies on the publication of near real time data at UK sub terminals indicated that market participants rely heavily on the information provided via website links.²⁸

3.20. As outlined in Chapter 2, different market participants rely on the data published on NGG's website to varying extents, with large industrial gas users tending to rely on this data more heavily than larger suppliers (who can access this data from other sources, or have the resources to undertake their own independent analysis). We therefore consider the key benefit from improved website performance is ensuring that all market participants receive commercially critical information at the same time - in essence creating more of a "level playing field" for information access. This is particularly important in light of the potentially difficult forthcoming winter, given that we consider a fully-informed market will be better placed to respond to difficult circumstances.

3.21. We consider that that the key benefits to customers of improvements in the performance of NGG's website are:

²⁸ Responses to 'Publication of Near Real Time Data at UK Sub-Terminals (UNC Modification Proposal 006 – Ofgem Impact Assessment – Case Study' – 10 January 2006.

- delivering the benefits from improvements in demand forecasts to large customers, and
- improving the timing of trading decisions.

Delivering benefits from improved demand forecasts to large customers

3.22. As outlined in Chapter 2, gas demand forecasting data produced by NGG is delivered to the market through two means; the "Gemini" system, and through NGG's website. Therefore although demand forecasting data is collated in the same NGG NTS internal database, it is delivered to separately to shippers through the Gemini system and to the rest of the market through the website. Feedback from users suggests the key segment of the market that relies on NGG's website to deliver this data is large industrial users (representing around 24% of total gas consumption)²⁹.

3.23. As a consequence, users of demand forecasts that do not have access to the Gemini system can therefore only factor NGG's gas demand forecasts into their commercial decisions (and consequently capture any benefits of improvements in these forecasts) to the extent that NGG's website is available. Given the size of the potential benefits identified from improvements in the accuracy of NGG's gas demand forecasts, and the size of the market that relies on NGG's website to receive gas market data, increases in the availability and timeliness of the posting of this data on NGG's website is likely to deliver significant benefits to market participants.

Better informed trading decisions

3.24. We consider that a key benefit of improved website performance is that those market participants who rely on the operational gas market data posted on the website are able to make better informed trading decisions. As outlined in Chapter 2, this is primarily large customers.

3.25. We have estimated the potential benefit to customers from improvements from analysis of data on complaints received by Ofgem regarding the performance of NGG's website (as more fully outlined in Chapter 2). Specifically, we have used this data to estimate the potential cost incurred by customers from website unavailability over winter 2005/06.

3.26. Ofgem received 53 complaints relating to 43 instances of website problems (directly as a consequence of the unavailability of key data on NGG's website last winter). As described in Chapter 2, we estimated the average duration of website problems over this period to be approximately 1.5 hours. Assuming that, in each instance, users of the website deferred trading decisions until the reported problem was resolved, costs may have been incurred by these users to the extent that market prices changed before the website problem was rectified.

3.27. To understand the scale of these costs, we analysed trading volumes and gas price volatility on each of the days on which a problem relating to the availability of one or more elements of gas market operational data on NGG's website was reported to Ofgem. Applying the potential change in gas prices to the level of traded volumes

²⁹ Natural Gas Information 2005, IEA Statistics.

potentially affected on each of the days a complaint was reported to Ofgem results in a potential cost to users of over £1.8m³⁰. Further details on this calculation may be found in Appendix 4.

3.28. As our analysis has only focused on complaints received by Ofgem relating to problems with NGG's website over winter 2005/06, we consider this to be a conservative estimate. To the extent that users either experienced a problem with NGG's website but did not register a complaint, or did not notify Ofgem that a complaint had been lodged with NGG, then these instances will have been omitted from our analysis.

Summary

3.29. This chapter sought to quantify some of the key potential benefits to customers of improvements to both NGG's gas demand forecasts and website performance. We have illustrated these potential benefits by estimating the costs incurred by customers resulting from problems with NGG's performance in both of these areas last winter. Our analysis suggests that improvements in gas demand forecasting accuracy may deliver significant potential benefits to customers. On the basis of feedback received from market participants, we also suggest that the availability of gas market operational data on NGG's website is of commercial importance to users. As a consequence, improvements in website performance will also have the potential to deliver significant benefits to market participants and consequently to customers.

³⁰ Calculated with 95% certainty based on the volatility of weighted average hourly spot price during the time affected.

4. Ofgem's initial proposals

Chapter Summary

This chapter summarises our initial proposals for two new SO incentives, relating to demand forecasting accuracy and website performance.

Questions

Question 4.1: Do you agree with the choice of performance measure for the gas demand forecasting accuracy and website performance incentives?

Question 4.2: Do you agree with the proposed scope of both of the proposed incentives?

Question 4.3: Do you agree that the incentives should not be weighted towards any specific period within the duration of the incentive?

Question 4.4: Do you consider posting of key data within 20 minutes of real time to be an appropriate measure of timeliness to use in the website performance measure?

Question 4.5: Do you consider Option 1 or Option 2 of the demand forecasting accuracy incentive to be most appropriate?

Question 4.6: Do you consider Option 1 or Option 2 of the website performance incentive to be most appropriate?

Question 4.7: Do you agree with the proposed duration of the incentives?

Question 4.8: Do you agree with the proposed method of recovering any resulting cost from these incentive schemes?

Introduction

4.1. This chapter presents our initial proposals for two new SO incentives designed to improve the quality of NGG's gas demand forecasts and website performance.

Gas demand forecasting accuracy

4.2. Specifying an incentive for improving the accuracy of gas demand forecasting requires a range of issues to be addressed, relating to:

- scope
- form, and
- duration

Scope

4.3. The key issue to be addressed with regard to the scope of this incentive is the definition of the most appropriate performance measure. This requires consideration of a number of separate questions:

- which demand forecast published by NGG (from day ahead, through to end of day) is of most value to industry participants (and is therefore the most appropriate indicator of forecasting performance)
- should the incentive be focused on accuracy of estimating total (system) demand, or on a subset of demand, and
- should any period of the year / season be weighted more heavily in the incentive than another?

Choice of demand forecast

4.4. As outlined in Chapter 2, NGG publishes a range of different demand forecasts, from day ahead, through to end of gas day. As a consequence, there are a range of different forecasts that could be used as the basis of a performance measure.

4.5. Informal consultation through the DSWG has suggested that all demand forecasts produced by NGG are of importance to users. However, of these, the forecast published before 14.00 at day ahead was singled out as being the most important (this being the first demand forecast published by NGG for the gas day)³¹.

4.6. We therefore propose that the incentive uses the 14.00 day-ahead demand forecast as the basis for the performance measure.

4.7. In the context of these proposed incentives (and feedback received from market participants), we are working with NGG to examine ways of increasing the level of forecast gas demand information delivered to market participants, ahead of this winter. In particular, NGG is developing proposals for the publication of D-5 demand forecast data, and these proposals will be presented at the next meeting of the DSWG³². NGG is also exploring ways in which more disaggregated gas demand forecasting data may be published at day-ahead.

Composition of demand forecast

4.8. There are a number of ways in which the composition of demand forecast included in the performance measure can be defined. The main choices are measuring the accuracy of:

- total system demand forecasts (NTS throughput), or
- sub-components of the total system forecast (e.g. LDZ throughput and / or NTS connected load)

4.9. Placing the incentive on the total system demand forecast would be the simplest approach, providing NGG with the most transparent incentive. It would also give

³¹ All three responses received on this issue favoured the use of the 14.00 day-ahead demand forecast.

³² On 20 June 2006.

NGG flexibility to deliver improvements to the system demand forecast by whichever means it considers most appropriate.

4.10. In contrast, focusing the incentive on one or more sub-components of the system demand forecast would allow the incentive to be targeted on those elements of NGG's forecast that we consider require most improvement. This may be appropriate, for example, if we considered that customers valued one aspect of the demand forecast more highly than another.

4.11. The majority of feedback received from presentation of this issue at DSWG has suggested that it is the accuracy of total system demand forecast that should be subject to any incentive, as it is this forecast that is most useful to industry participants when assessing the demand-supply balance for the coming day³³.

4.12. For reasons of simplicity, and consistent with the majority of feedback received on the issue, we therefore propose using the accuracy of the system demand forecast published on NGG's website by 14.00 at day-ahead as the performance measure for the incentive.

Weighting

4.13. A further issue to be addressed is whether demand forecasting performance should be weighted equally across every day in the year in the calculation of incentive payments, or whether NGG's performance on certain days / periods (e.g. when the system is at most stress) should be weighted more highly.

4.14. An argument for weighting one period in the year more highly than another would be if demand forecasts were of higher value to market participants on some periods more than others. Weighting performance over such periods more highly may then give NGG an incentive to focus more resource on ensuring the accuracy of demand forecasts on these days.

4.15. Feedback received on this issue suggests that, on balance, it would not be appropriate to apply different weights to different periods across the gas year³⁴. In response to this, and on grounds of simplicity and transparency, we propose that no weighting is applied to the incentive.

4.16. More details regarding the calculation methodology to be used for the performance measure, and an illustrative example are provided in Appendix 5.

Form

4.17. The key policy issue to be addressed with regard to form is the extent of upside and downside risk the incentive places on NGG. To this end, we have developed two alternative options for the demand forecasting incentive:

³³ Four of the five responses received suggested that the national forecast was the most important.

³⁴ Three of five DSWG attendees that expressed a view on this issue favoured an equal weighting for demand forecasting performance across the year.

- Option 1, that offers NGG the potential to earn "upside-only" incentive payments³⁵, and
- Option 2, that presents NGG with upside and downside risk in terms of incentive payments, with an increased potential level of upside risk (more consistent with the form of other SO incentives)³⁶.

4.18. We invite views of respondents on which of these alternatives is most appropriate for implementation for winter 2006/07.

4.19. We consider the choice of which of these alternatives is most appropriate should be informed the level of service quality that market participants and customers could reasonably expect in light of the funding allowed under the current price control. If users of NGG's demand forecasts consider that the quality of service currently provided by NGG meets reasonable expectations, then an incentive consistent with Option 1 would be more appropriate. However, if users consider the service provided by NGG is below a level of quality that could be reasonably expected, then Option 2 may represent the more appropriate choice.

4.20. It is important to note that we do not consider that an incentive scheme offering the prospect of only positive incentive payments for NGG generally represents a good deal for customers. However, we consider there may be exceptional reasons why Option 1 may be appropriate for adoption in advance of winter 2006/07.

4.21. Specifically, we consider that the incentive scheme will need to be implemented before the end of September 2006 to enable NGG to undertake the necessary improvement projects in response to the new incentive. As this can only be achieved so long as NGG accepts this incentive in a timely fashion (and in light of the size of potential benefits to customers from any improvement in NGG's demand forecasting accuracy), we therefore consider it may be appropriate to favour Option 1 on this occasion.

4.22. However, it is important to state that we do not consider the form of incentive described in Option 1 would be appropriate as an enduring scheme. Instead, were Option 1 implemented, we would seek to review fundamentally this scheme prior to the end of winter 2006/07, with a view to implementing a scheme in which there is a more balanced approach to the level of upside and downside risk on NGG (such as the incentives in place for the electricity distribution network operators, outlined more fully in Appendix 6). This may include a combination of incentives and/or compensation events depending on the level of service quality achieved by NGG.

4.23. We also note that, in the event that the quality of any specific aspect of the service provided by NGG is below that required, market participants always have the option of seeking to raise modifications to the UNC that specifically define the standard of service required in any given area. The level of funding required to meet

³⁵ Although we note that NGG will carry the full investment risk of any initiatives it undertakes to improve performance in response to these incentives.

³⁶ An example of this is National Grid Electricity Transmission's SO incentive scheme, more details of which may be found in National Grid Electricity Transmission's System Operator incentive schemes 2006/07, Final proposals and statutory licence consultation, Ofgem, February 2006, 40/06, page 8.

these defined standards of service can then be considered at the time of the next price control.

4.24. Options 1 and 2 are described in more detail in the following sections.

Option 1

4.25. We propose that Option 1 is an incentive offering only upside incentive payments potential to NGG (in terms of payments under the incentive scheme)³⁷. The incentive delivers positive payments to NGG for improvements beyond the benchmark level of demand forecasting performance, and we propose this benchmark is set at NGG's forecasting performance over winter 2005/06.

4.26. The key consideration in setting the level of incentive payments that NGG could earn under this scheme was the potential benefits to customers of improvements in demand forecasting accuracy (outlined more fully in Chapter 2). However, we also consider that the potential incentive payments available to NGG for good performance should provide sufficient return to make new performance improvement initiatives in advance of this winter commercially viable.

4.27. NGG has indicated there are a range of performance improvement schemes it may be able to undertake for this winter, all of which are incremental to existing (planned) projects. These include projects relating to enhanced monitoring of performance, training initiatives for key personnel, improved analysis of actual demand data and limited systems initiatives³⁸. NGG has suggested that the cost of those (new) projects could be implemented in advance of winter 06/07 is likely to be in the range of £200k to £400k.

4.28. In view of the potential benefits to customers that may arise from improvements in NGG's demand forecasts, we propose that NGG should be able to earn incentive payments potentially in excess of the estimated cost of these projects, for a reasonably achievable improvement in demand forecasting accuracy. We believe this should provide an appropriate commercial incentive for NGG to actively pursue improvements in demand forecasting accuracy, and develop innovative ways in which forecasts may be improved (even beyond those new initiatives outlined above).

4.29. Following discussions with NGG, we consider that a challenging target for a percentage improvement in the performance measure for demand forecasting accuracy over this winter would be 5% (i.e. a reduction in the average gas demand forecasting error from 3.6% to 3.4%). We also consider that such an improvement would deliver significant potential benefits to customers.

4.30. We therefore propose that under Option 1 of the incentive, a 5% improvement in the demand forecasting performance measure would trigger an incentive payment

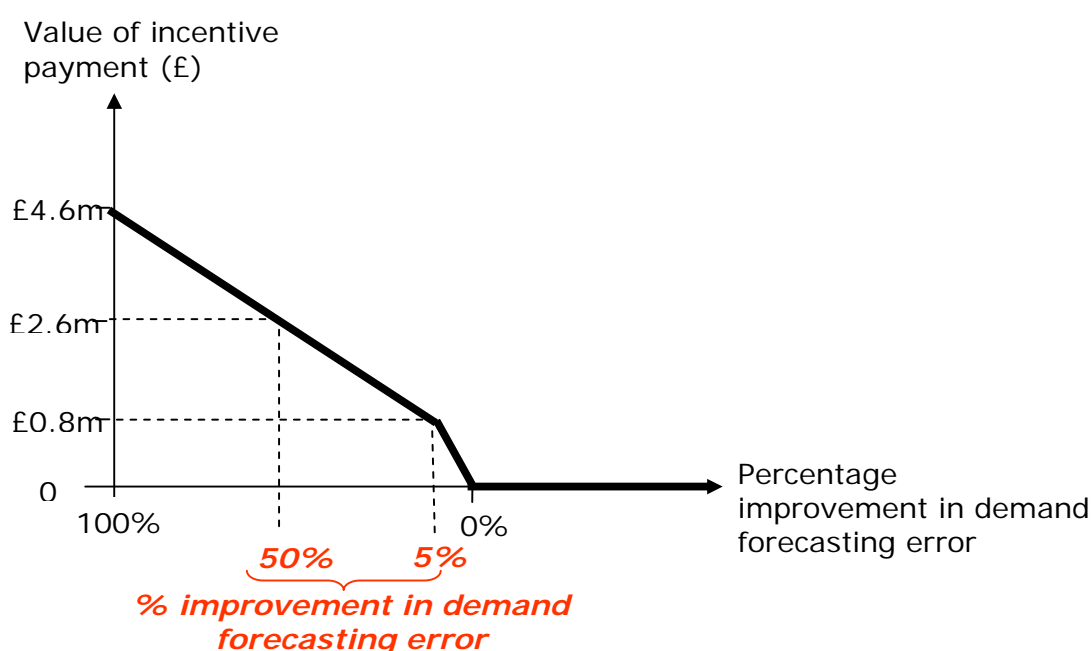
³⁷ NGG has indicated that new projects it may undertake to deliver improvements in response to this incentive are likely to incur significant costs which would not be recovered unless it delivers improved performance against the incentive.

³⁸ NGG has confirmed that all of these potential initiatives are incremental to currently sanctioned IS work, and that the potential cost of these projects would not be considered in the scope of existing 'normal' work (recovered from allowed revenue) or the operation of any other SO incentive schemes.

of £800k. We propose that improvements beyond this target level should also attract additional incentive payments, but at a lower incremental rate. We therefore propose that each additional 5% improvement in the performance measure beyond the target results in an additional £200k payment. Theoretically, the maximum incentive payment NGG could earn under this proposal would be £4.6m. However, we consider it extremely unlikely that payments of this level would be triggered, given this would require NGG's demand forecasts to be perfectly accurate across the whole of winter.

4.31. Option 1 is illustrated in Figure 8 below:

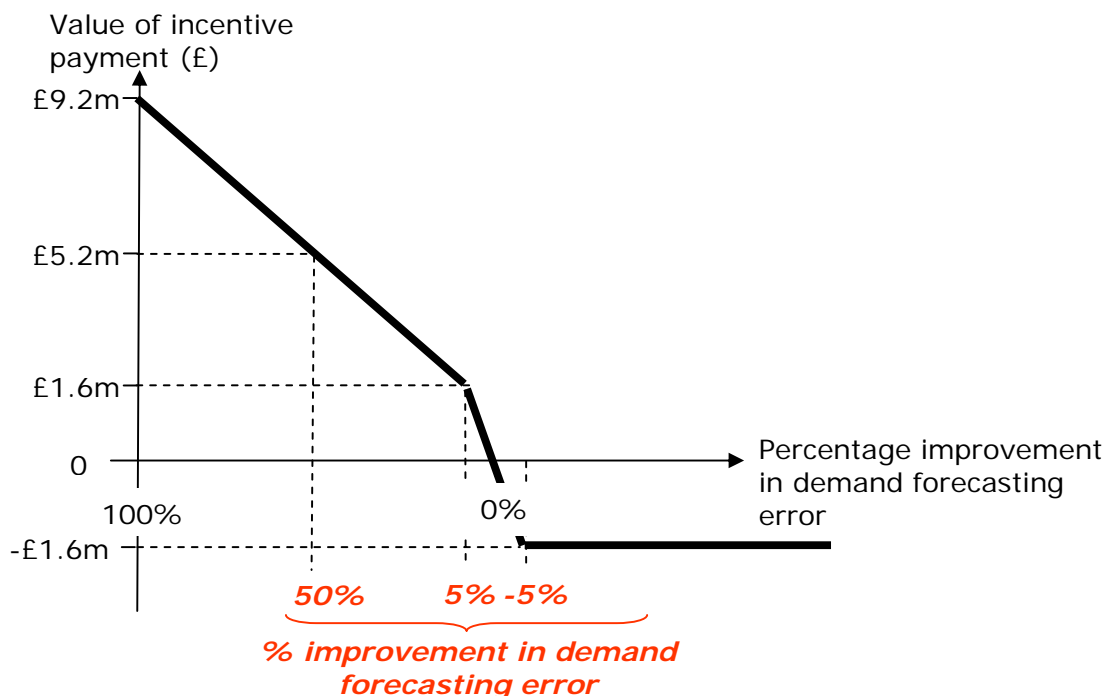
Figure 8 Demand forecasting accuracy incentive (Option 1)



Option 2

4.32. We have developed an alternative proposal to Option 1, designed to provide both upside and downside risk to NGG, yet which also offers the potential for higher upside payments. Option 2 is illustrated in Figure 9.

4.33. Under this option, the potential upside available to NGG for improved performance is doubled (therefore a 5% improvement in performance beyond the winter 2005/06 benchmark results in incentive payments of £1.6m, as opposed to £0.8m under Option 1). However, NGG is also exposed to a potential downside risk, with a deterioration in performance by 5% leading to an incentive cost to NGG of £1.6m. We propose placing a collar on the potential losses at this level to ensure that the extent of downside risk on NGG from this incentive is limited to a reasonable level.

Figure 9 Demand forecasting accuracy incentive (Option 2)

4.34. Fundamentally, we consider that this option is likely to deliver a more balanced sharing of risk between NGG and customers, in that NGG would share a proportion of the costs incurred by customers resulting from a deterioration in NGG's current demand forecasting performance.

Duration

4.35. Given that the incentive parameters outlined above have been specifically designed to deliver benefits to customers for this forthcoming winter, we propose that this incentive (in either form of Option 1 or Option 2) is implemented for winter 2006/07 only. We propose that it is reviewed prior to the end of this period with a view to implementing more appropriate enduring arrangements designed to improve quality of service delivered by NGG. We therefore propose that the incentive runs from 1 October 2006 to 31 March 2007.

Recovery of incentive cost

4.36. This incentive relates to improvements in the general performance of the SO (rather than specifically relating, for example, to system balancing). For this reason, we consider it appropriate for any costs of this incentive to be recovered through the SO commodity charge (with any net gain from the incentive being redistributed via the same route).

Website performance

4.37. Defining an incentive relating to the performance of NGG's website also requires consideration of issues relating to the following areas:

- scope
- form, and
- duration

Scope

4.38. The key element of an effective incentive to promote the improvement of NGG's website is the choice of robust performance measures that accurately reflect the level of service received by customers.

4.39. Rather than focusing on the website as a whole, we consider that the incentive should focus on those data fields that are of most value to customers. As outlined in Chapter 2, feedback received from DSWG attendees suggests these are data relating to linepack, physical and nominated NTS flows and forecast demand.

4.40. Feedback received from attendees of the DSWG meeting (and the nature of the majority of complaints made regarding the performance of NGG's website last winter) also suggest that the key dimensions of performance in which respondents would value improvement are:

- availability of the website for customer access, and
- timeliness of the updating of data on the website.

4.41. We consider that these two measures are complementary (in that a failure of the website would lead to underperformance against both of these measures), yet that both of these measures define distinct aspects of the service delivered by NGG that are valued equally by industry participants.

4.42. The additional area on which industry participants raised significant numbers of complaints related to the consistency of the forecast demand data published on the website with that available on the Gemini system. As outlined earlier in this chapter, we have proposed that the incentive on demand forecasting accuracy is based on data published on NGG's website. We consider this scheme should provide sufficient incentive on NGG to ensure that the data published on its website is accurate (and do not consider it necessary for a separate incentive to address this issue).

Availability

4.43. As outlined in Chapter 2, NGG currently monitors the availability of its website through use of an independent third party specialist website monitoring company. This monitoring is done on a continuous basis, and provides an accurate measurement of availability (with failure to download website data within 20 seconds being categorised as "unavailable").

4.44. We propose that the availability performance measure is based on the same measurement methodology currently used by NGG, applied to the availability of the

key data published on NGG's "Daily Summary Report" (that includes a summary of linepack data, physical and nominated NTS flows, and forecast demand data)³⁹. Feedback from industry participants has suggested that the availability of this data is required at all times (rather than just, for example, on business hours Monday to Friday). We therefore propose that the performance measure is based on availability 24 hours a day, 7 days a week across the duration of the incentive period.

4.45. As outlined in Chapter 2, NGG has measured the availability of the NTSAPF page over the period November 2005 to March 2006 as being 99.89%. To provide a clear measure of the availability of the website over winter 2006/07, we propose measuring improvements in availability in terms of reductions in downtime. Applying this percentage to winter 2006/07 means that the proposed benchmark performance for the availability incentive is a downtime of the key data published on the Daily Summary Report of 4 hours 48 minutes⁴⁰.

4.46. Finally (and for consistency with the demand forecasting accuracy incentive), we propose that NGG's performance across the duration of the incentive period is weighted equally across all time periods.

Timeliness

4.47. NGG monitors the timeliness of data posted on its website, compared to defined publication times, for all of the four data fields outlined above as being of critical importance to industry participants. As described in Chapter 2, performance data on timeliness is currently collected through analysis of system data logs, a process that relies on manual data analysis.

4.48. From the analysis presented to us from NGG, we consider that system data logs are a sufficiently robust source of data for the measurement of timeliness performance. However, in using this data, we will require NGG to assure us that data continues to be collated under the same assumptions as have been used in the preparation of the measurement benchmark, and that performance measurement data is fully auditable and independently verifiable. This is in line with similar arrangements on other SO incentives.

4.49. We propose that the timeliness performance measure is based on average timeliness of the posting of linepack data, physical and nominated NTS flows and forecast demand data on NGG's website. We propose that timeliness is measured as an average of the percentage of occasions these data are posted within 20 minutes of real time (for the three data reports updated hourly), and the percentage of occasions demand forecasts are published by their stated publication times. On the basis of performance data presented in Chapter 2, we consider that the "20 minute" threshold represents a target for which there is significant scope for improvement, and represents an appropriate performance level to which NGG should aspire. We invite respondents' views on whether publishing data within 20 minutes of real time is the appropriate target for timeliness.

³⁹ <http://www.nationalgrid.com/uk/Gas/Data/dsr/>

⁴⁰ 99.89% availability implies a downtime of 0.11%. Over Winter 06/07, this is equivalent to 288 minutes of unavailability, or 4 hours 48 minutes.

4.50. Applying this methodology to timeliness data collected by NGG over winter 2005/06 (outlined in Chapter 2) provides a benchmark level of timeliness of 44.25%. The calculation of this benchmark is detailed in Appendix 5.

Overall website performance

4.51. We propose that overall website performance is measured as being the average of the percentage improvement in availability (i.e. percentage reduction in downtime) and percentage improvement in timeliness over winter 2006/07, compared to winter 2005/06. On the basis of feedback received by market participants, we do not consider it appropriate to apply a weighting to either aspect of NGG's website performance in calculating this average.

4.52. An example of the way in which the proposed performance measure will be calculated is included in Appendix 5.

Form

4.53. As with the demand forecasting accuracy incentive, the key policy issue to be addressed with regard to the form of the website performance incentive is the extent of upside and downside risk the incentive places on NGG. For the same reasons as stated above, we propose two alternative options for the website performance incentive, and invite views from respondents on which option is the most appropriate, and consider Option 1 may be appropriate for winter 2006/07 (given exceptional circumstances), but not as an enduring solution. We also reiterate (as described more fully above) that the views of respondents on the option they consider most appropriate should be informed by the quality of service that could be reasonably expected in the context of the level of funding allowed under the current price control.

Option 1

4.54. Under Option 1 of the incentive (consistent with Option 1 for the demand forecasting accuracy incentive), we propose that NGG faces only a potential upside in terms of payments made under the incentive scheme.

4.55. In setting the level of incentive payments that NGG could earn under this scheme, the key consideration was the potential benefits to customers of improvements in website performance. However, we also considered that the potential incentive payments available to NGG for good performance should provide sufficient return to make new performance improvement initiatives undertaken by NGG in advance of this winter commercially viable.

4.56. NGG has suggested that a range of new projects could be implemented in time to deliver performance improvements for this winter, including improved server monitoring and alerting software, process modifications and additional maintenance

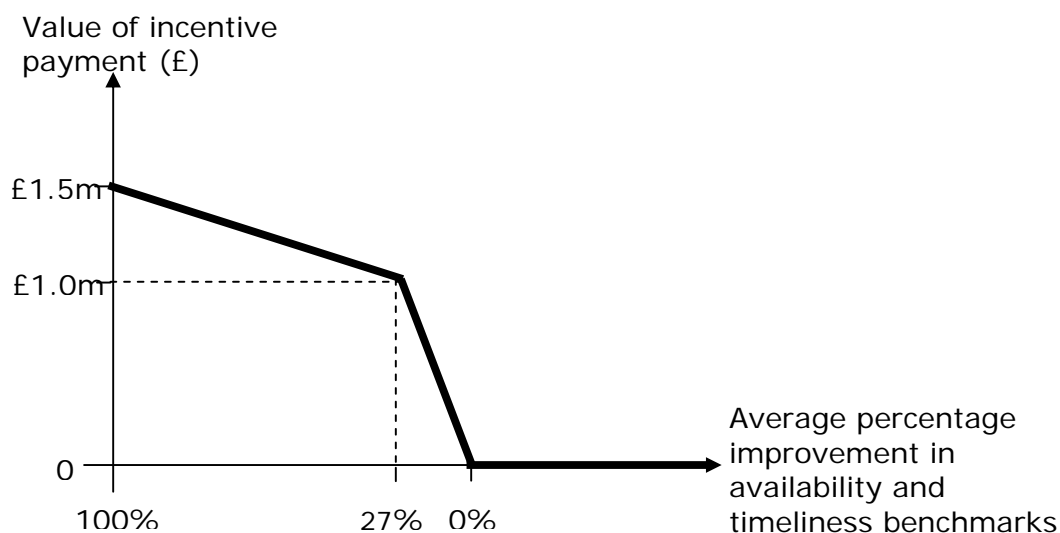
and support⁴¹. NGG has suggested that the total expected cost of projects that could be implemented to delivery change for this winter would be around £600k.

4.57. We propose that an improvement in performance up to a defined target level should trigger an incentive payment of £1m over the duration of the incentive period. Above this target level, we propose that incentive payments continue to rise in line with increases in performance levels, but at a lower (constant) rate. We propose the maximum level of incentive payments available to NGG (payable for 100% performance) is £1.5m. Consistent with the form of the demand forecasting accuracy incentive, we consider this should provide an appropriate commercial incentive for NGG to pursue actively improvements in website performance, and develop innovative ways in which performance may be improved (even beyond those potential new initiatives outlined above).

4.58. As outlined in Chapter 2, NGG has provided historical website availability data relating to the period November 2005 to March 2006, and timeliness data for October 2005 to March 2006. From discussions with NGG, and on the basis of the improvement projects NGG has indicated it may be willing to undertake to deliver improvements in website performance for this winter, we consider that a realistic performance target for NGG's website performance is a 27% average improvement in the availability and timeliness benchmarks. As illustrated in Appendix 5, this could be achieved through a reduction in downtime from 4 hours 48 minutes to 3 hours 30 minutes, and an improvement in the timeliness measure (as defined above) from 44.25% to 56.25%

4.59. This is illustrated in Figure 10 below:

Figure 10: Website performance incentive (Option 1)



⁴¹ NGG has confirmed that all of these potential initiatives are incremental to currently sanctioned IS work, and that the potential cost of these projects would not be considered in the scope of existing 'normal' work (recovered from allowed revenue) or the operation of any other SO incentive schemes.

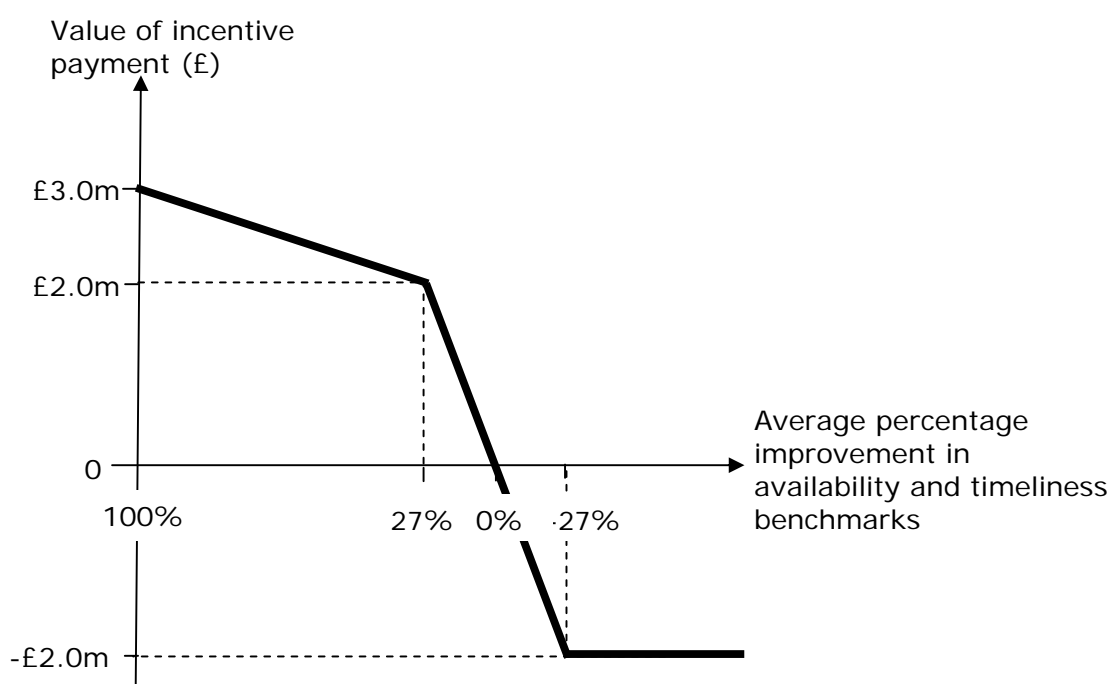
Option 2

4.60. We also propose a second alternative form for the incentive, designed to provide both upside and downside risk to NGG. It also offers the potential for higher upside payments (in return for the acceptance of some downside risk).

4.61. Under this option, the potential upside available to NGG for improved performance is doubled (therefore meeting the "target" level of performance of a 27% improvement results in an incentive payment of £2m, as opposed to £1m under Option 1). However, under this option, NGG is also exposed to downside risk, with deterioration in performance by 27% leading to an incentive cost to NGG of £2m. We propose placing a collar on the potential losses at this level to ensure that the extent of downside risk on NGG from this incentive is limited to a reasonable level.

4.62. Option 2 is illustrated in Figure 11 below.

Figure 11: Website performance incentive (Option 2)

**Duration**

4.63. For consistency with the demand forecasting accuracy (and for the same reasons as outlined above) we propose that this incentive runs from 1 October 2006 to 31 March 2007, and is reviewed prior to the end of this period.

Recovery of incentive cost

4.64. As with the demand forecasting accuracy incentive, this incentive relates to improvements in the general performance of the SO (rather than specifically relating, for example, to system balancing). For this reason, we also consider it appropriate for any costs of this incentive to be recovered through the SO commodity charge.

Next steps

4.65. We welcome the views of all interested parties regarding all aspects of these initial proposals. On the basis of responses received to this consultation, we will prepare final proposals for these incentives, including a statutory notice containing draft licence conditions that reflect our proposed changes. We intend to publish final proposals and the associated statutory notice in July 2006.

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.

1.2. We would especially welcome responses to the specific questions outlined in Chapters 3 and 4:

Question 3.1: Do you agree that the scope of potential benefits from improved quality of information is correct?

Question 3.2: Do you agree that the potential benefits from improvements in demand forecasting accuracy are quantified appropriately?

Question 3.3: Do you agree that the potential benefits from improvements in website performance are quantified appropriately?

Question 4.1: Do you agree with the choice of performance measure for the gas demand forecasting accuracy and website performance incentives?

Question 4.2: Do you agree with the proposed scope of both of the proposed incentives?

Question 4.3: Do you agree that the incentives should not be weighted towards any specific period within the duration of the incentive?

Question 4.4: Do you consider posting of key data within 20 minutes of real time to be an appropriate measure of timeliness to use in the website performance measure?

Question 4.5: Do you consider Option 1 or Option 2 of the demand forecasting accuracy incentive to be most appropriate?

Question 4.6: Do you consider Option 1 or Option 2 of the website performance incentive to be most appropriate?

Question 4.7: Do you agree with the proposed duration of the incentives?

Question 4.8: Do you agree with the proposed method of recovering any resulting cost from these incentive schemes?

1.3. Responses should be received by **23 June 2006** and should be sent to:

Sonia Brown
Director, Wholesale Markets
Ofgem
9 Millbank
London
SW1P 3GE

wholesale.markets@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. Following consideration of any representations received, final proposals for the two incentive schemes will be developed, including a statutory notice containing draft licence conditions that reflect our proposed changes. We intend to publish both final proposals and the associated statutory notice in July 2006.

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

Simon Bradbury
Wholesale Markets
Ofgem
9 Millbank
London
SW1P 3GE

020 7901 7249

Simon.Bradbury@ofgem.gov.uk

Appendix 2 - Informal Consultation pro forma

Improving NG's website performance and demand forecasting accuracy: pro forma

Objective of this pro forma

1.1. This pro forma should be completed with reference to the presentation "Improving NG's website performance and demand forecasting accuracy", delivered to DSWG on 20 April 2006⁴².

1.2. Please provide as much detail in your response as possible (and where relevant, rank your preferences in order of importance to you).

Pro forma

| Issue on which views invited | Comment / view |
|---|-----------------------------------|
| Website performance | |
| Is an SO incentive the most appropriate way of delivering improvements to website performance? | |
| On which data should the website performance incentive focus, ranked in order of importance (where 1 is the most important)? | 1. 2. 3. 4. 5. ... |
| What are the appropriate measures of website performance, ranked in order of importance (where 1 is the most important) ⁴³ ? | 1. 2. 3. 4. 5. ... |
| Should peak periods have a higher weighting than off-peak periods? | |

⁴²See

http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/14765_Ofgem_Presentation_website_and_demand_TD.pdf?wtfrom=/ofgem/work/index.jsp§ion=/areasofwork/wholesalemarketmonitoring/wholesalemarketmonitoring01

⁴³ See footnote 1

Potential new gas SO quality of information incentives

May 2006

| Issue on which views invited | Comment / view |
|--|-----------------------------------|
| Is it appropriate for the trigger for positive payments to be current performance? | |
| Should the incentive collar be set at zero (i.e. should incentive represent upside only to NG)? | |
| How should the caps for the incentive be determined? | |
| Should this incentive be enduring, or time-limited? | |
| Other views | |
| Demand forecasting accuracy | |
| Is an SO incentive the most appropriate way of delivering improvements to demand forecasting accuracy? | |
| On which data should the demand forecasting incentive focus, ranked in order of importance (where 1 is the most important) ⁴⁴ ? | 1. 2. 3. 4. 5. ... |
| What is the most appropriate measure of demand forecasting accuracy (e.g. difference between 13.00 day ahead and end of day)? | |
| Should peak periods have a higher weighting than off-peak periods? | |

⁴⁴ For example, aggregate system demand, or disaggregated by DM and NDM load?

Potential new gas SO quality of information incentives

May 2006

| Issue on which views invited | Comment / view |
|---|----------------|
| Is it appropriate for the trigger for positive payments to be current performance? | |
| Should the incentive collar be set at zero (i.e. should incentive represent upside only to NG)? | |
| How should the caps for the incentive be determined? | |
| Should this incentive be enduring, or time-limited? | |
| Other views | |

Appendix 3 - External data reports provided on NGG's website

| Report / Data | Detail | Frequency |
|--|---|-----------|
| NORD01 - Balancing Summary | Summary of balancing (kwh & £) for 5 six hour time periods per location/balancing type, total cost of balancing actions, highest SAP in last 18 months, SMIBP & SMISP | Daily |
| NORD01 - Cashout Balancing Prices | Daily System Prices summary. | Daily |
| NORD01 - Daily Balance Report | Aggregate Shipper: Entry/Exit Noms, Storage Withdrawal/Injection Noms, Shrinkage Input output Noms | Daily |
| NORD03 - Entry Capacity Trading Report - Future | A summary of Entry Capacity Trading (within day and future capacity) at Terminals. | Daily |
| NORD03 - Entry Capacity Trading Report - Future (Entry Zones) | A summary of Entry Capacity Trading (within day and future capacity) at Terminals. | Daily |
| NORD03 - Entry Capacity Trading Report - Future (Transactions) | A summary of Entry Capacity Trading (within day and future capacity) at Terminals. | Daily |
| NORD03 - Entry Capacity Trading Report - Within Day | A summary of Entry Capacity Trading (within day and future capacity) at Terminals. | Daily |
| NORD03 - Entry Capacity Trading Report - Within Day (Transactions) | A summary of Entry Capacity Trading (within day and future capacity) at Terminals. | Daily |
| NORD04 - Exit Capacity Trading Report - Booked | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD04 - Exit Capacity Trading Report - Traded future | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD04 - Exit Capacity Trading Report - Booked future | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |

Potential new gas SO quality of information incentives

May 2006

| Report / Data | Detail | Frequency |
|---|---|-----------|
| NORD04 - Exit Capacity Trading Report - Future | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD04 - Exit Capacity Trading Report - Future (Transactions) | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD04 - Exit Capacity Trading Report - Within The Day | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD04 - Exit Capacity Trading Report - Within The Day (Transactions) | A summary of Exit Capacity Trading (within day and future capacity) at LDZ's and aggregated VLDMC's.. | Daily |
| NORD06 - Gas Trading Report | Summary of NBP Gas Trades (aggregated). | Daily |
| NORD07 - Capacity Availability Report | A summary of Entry Capacity booked across all ASEPs including prices from the various capacity auctions and buy back volumes. | Daily |
| NORM01 - Use of Balancing Tools | For each day in Month, LP Change, aggregate OCM System Buys/Sells, OM gas used, Top up gas used, NGG Interruption (not emergency), constrained LNG gas used. | Monthly |
| NORM04 - Aggregate Balancing Financial Position | For each day in Month, aggregated shipper Energy Imbalance Charges/payments, Scheduling Charges | Monthly |
| NORM06 - Demand Analysis | For each day in Month, aggregated total system demand | Monthly |
| NORM06 - Demand Analysis for individual LDZ | Graphs Showing CWV deviation, Graph Showing Demand Variation, Graph showing Forecast Vs Actual & Graph Showing Day ahead Forecast Vs Actuals. All on separate Graphs on one report by Gas Day | Monthly |
| NORM06 - LDZ Demand (DM) | For each day in Month, aggregated total system demand | Monthly |
| NORM06 - LDZ Demand (NDM) | For each day in Month, aggregated total system demand | Monthly |
| NORM12 - Storage Injection & Withdrawals | Aggregate daily Storage Withdrawals & Injections. | Monthly |

Potential new gas SO quality of information incentives

May 2006

| Report / Data | Detail | Frequency |
|---|---|-----------|
| NORM13 - Total Shrinkage Figures | Total daily shrinkage (NTS & LDZ) forecast ,and actual shrinkage | Monthly |
| NORM14 - Shrinkage Trends | Total monthly shrinkage (NTS & LDZ) forecast and actual shrinkage for rolling 12 month period | Monthly |
| NORM18 - Demand Features | Narrative on demand activity for month. | Monthly |
| NORM19 - Forecast Composite Weather Variable Features | Narrative on forecast CWV activity for month. | Monthly |
| NORM20 - OCM Balancing Data | Daily summary of NGG's use of OCM, split Buys/Sells/OCM Market type & SAP/Marginal system prices | Monthly |
| NORM21 - Balancing data trends | Graphs/charts showing total balancing costs/Locational costs for rolling 12 months, monthly trend values for average (monthly) system prices, comparison of buy/sell activity | Monthly |
| NORM23 - Entry Capacity Trading | Monthly summary of Entry Capacity traded by Entry zone | Monthly |
| NORM26 - Capacity Trading Analysis | Graph of monthly Entry Capacity traded & monthly Exit Capacity traded. | Monthly |
| NORM27 - Analysis of gas trading at the NBP | Aggregate shipper daily gas trading activity at the NBP summary (trades, energy, high & low) for the gas gas, and on the gas day. | Monthly |
| NTS Entry EOD flow Report | Summary of NTS Entry flows per sub terminal (commercial). | Daily |
| NTS Shrinkage - Gas Procurement & Disposal Report | Daily Summary of NTS Shrinkage trades & prices | Daily |
| NTSAFF - Aggregate Forecast Flows into the NTS | Forecasted Aggregate beach supplies split N/S based on DFN's | Hourly |
| NTSAFF - Aggregate Physical Flows into the NTS | Forecasted Aggregate beach supplies split N/S based on actual instantaneous flow | Hourly |
| AB25 - Shrinkage Factors | Shrinkage Factors/Quantities by LDZ | Daily |
| Annual Monthly System Entry Capacity - (AMSEC) | Summary of AMSEC auction results by ASEP | |
| Calorific Value | LDZ CV's | Daily |

Potential new gas SO quality of information incentives

May 2006

| Report / Data | Detail | Frequency |
|---|--|-----------|
| CONH - Constraint History | Summary of Entry Capacity Constraints by terminal | Daily |
| CSTI - Count of Sites Nominated by NGG for Interruption | Shows a count of sites nominated by NGG for Interruption within a formula year | Weekly |
| DA10 - View WCF/SF | Actual Weather Correction Factors & Scaling Factors per LDZ for each demand run. | Daily |
| Daily Summary Report / Gas Balancing Alert | Gas balancing alert, Demand (Forecast & Actual), Interruption and Supply | Various |
| DASD - Daily Auction - Summary Report (Daily) | Summary of (aggregated) day ahead Entry Capacity sold (and highest accepted bid price) by terminal | Daily |
| DASW - Daily Auction summary report (Within Day) | A summary of Entry Capacity within Day auction bids by terminal/timestamp | Hourly |
| FAST - Forecast of annual system throughput | Forecast of annual system throughput (in GWh) for a formula year. | Annually |
| FMST - Forecast of monthly system throughput | Forecast of monthly system throughput (in GWh) for 12 months in formula year. | Annually |
| WICO - sum of weekly outturn costs | Incentive Information | Weekly |
| QICO - quarterly outturn costs | Incentive Information | Quarterly |
| AWST - Actual Weekly System Throughput | Incentive Information | Weekly |
| FMTC - Forecast Monthly Targets Cost | Incentive Information | Monthly |
| ATCO - Annual Target Costs | Incentive Information | Annually |
| INEC - Interruption by Exit Zone/Cause | Summary of NGG Interruption per day for NTS/LDZ Exit Zones and reason (NTS Constraint/Balancing etc) | Daily |
| Likelihood of Interruption | Forecast of possible NGG Interruption by LDZ/NTS Zone | Daily |
| Long Term System Entry Capacity - (LTSEC) | Summary of LTSEC auction results by ASEP | |

Potential new gas SO quality of information incentives

May 2006

| Report / Data | Detail | Frequency |
|---|---|---------------------------------------|
| NB05 - System Nomination Balance | Aggregate Shipper Input/Output Nominations (& Imbalance) | Hourly |
| NB92 - System Status Information | Forecasted EOD (physical?) Demand/Opening LP & Predicted Closing LP | Hourly |
| OC46 - Price Information History | A history of SAP, SMP(b), SMP(s) per hour bar | Daily |
| Option Tender - Accepted | Summary of Option offers accepted by NGG | |
| Option Tender - Offered | Summary of Option offers offered by NGG | |
| Rolling Monthly System Entry Capacity - (RMSEC) | Summary of RMSEC auction results by ASEP | |
| SISR04 - Actual Demands | Actual EOD (physical) Demands split NTS/Individual LDZs | Daily |
| SISR03 - Forecast Demands | Forecast EOD (physical) Demand split NTS/Individual LDZs | 3 times day-ahead, 5 times on-the-day |
| Operational Summary | Various operational issues | daily |
| Monthly Demand and SND | | monthly |
| Storage Monitors | Latest and historical storage levels. Storage monitor levels | Daily |
| SV01 - Daily Shrinkage Factors & Quantities | Daily Shrinkage Factors & Quantities | 4 times daily |

Appendix 4 - Better informed trading decisions: analysis

1.1. Our estimate of the maximum benefit from informed trading decisions facilitated by improvements in the performance of NGG's website is derived from analysis of the maximum potential cost of the unavailability of NGG's website in winter 2005/06.

1.2. The analysis we have undertaken is based on the principle of Value at Risk, a probabilistic measure for the maximum estimated trading loss with a certain confidence. On this basis, we estimate, with a 95% confidence, the maximum loss that traders may have incurred by inefficient trading decisions during the time of a website outage (resulting from a potential adverse change in prices). The calculation is based on estimating the average price, price volatility and traded volumes during the time of each website outage.

1.3. Our methodology had three parts:

1. For each hour in winter 2005/2006:

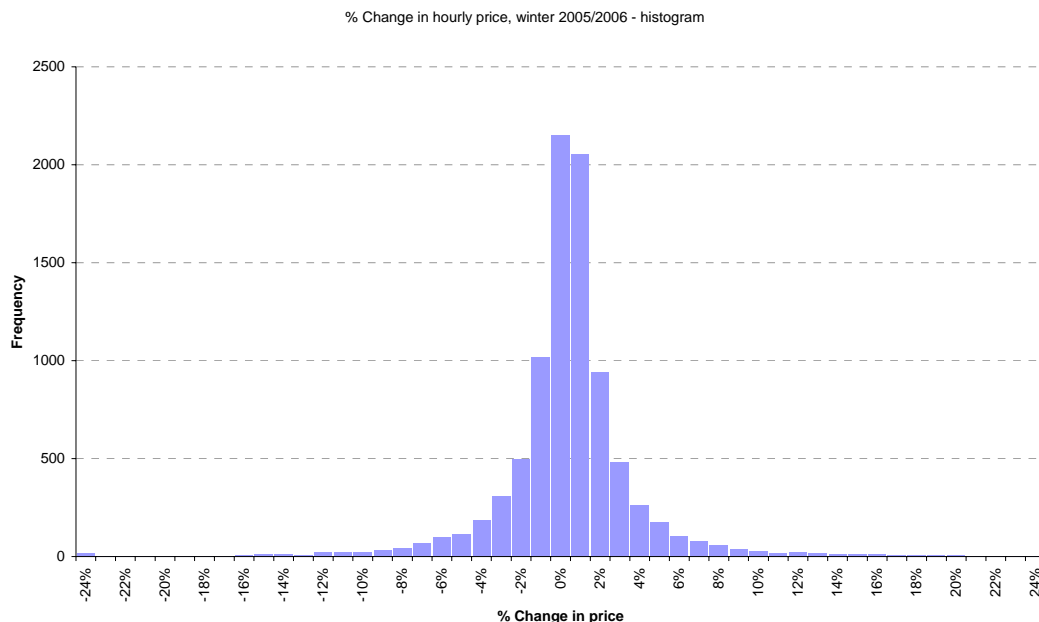
- We aggregated the volume and value of within-day OCM trades, and used this to calculate a volume-weighted average price for gas
- We calculated the volatility of the hourly price on a rolling, 24-hour time window, and
- We calculated the average within-day volume traded on a rolling, 24-hour time window⁴⁵.

2. For each unique reported NGT website issue:

- We estimated the time taken, in hours, to resolve the problem. Where we did not have data on how long it took to resolve the issue, we used the average of all unique reported complaints
- We cross-referenced the time when each problem was reported to the volume-weighted average price at the time calculated in step 1, and the corresponding volatility, calculated in step 2
- We calculated the 95th percentile price movement based on the price and volatility levels at the time when the issue was observed. From the observed data, we assumed that hourly price changes follow a normal distribution according to standard financial engineering practice (Figure 12). We scaled the 95th percentile price movement to take into account the duration of each website outage or problem, using the square root of time rule of volatility
- We multiplied the estimated 95th percentile price deviation with the 24-hour rolling average volume to estimate the potential total cost.

⁴⁵ As OCM trades only represent a proportion of gas trades undertaken within-day, our analysis represents a conservative estimate of the potential benefits of improvements in website performance.

Figure 12: Assumed distribution of price changes



3. We then aggregated the estimated 95th percentile cost for all notified website outages to produce an estimate for the maximum cost for winter 2005/06.

Appendix 5 – Calculation of incentive performance measures

1.1. This appendix describes how the performance measures for the two proposed incentives will be calculated.

Demand forecasting incentive performance measure

1.2. It is proposed that the performance measure for the demand forecasting incentive (based on total NTS throughput) is calculated as follows:

- sum the absolute error in each day's 14.00 day-ahead demand forecast (compared to actual daily demand calculated at D+5) over the duration of the incentive period (in mcm), and
- divide total (daily) absolute error by total actual demand over the same time period.

1.3. Calculating the incentive in this manner will mean daily absolute demand forecasting error will be treated equally across the duration of the incentive. This approach is also consistent with the approach adopted for other comparable SO incentive schemes (such as the cumulative Incentivised Balancing Cost in the electricity SO incentive scheme).

Example: performance over winter 2005/06

1.4. Over winter 2005/06 (October 1 2005 - 31 March 2006):

- total daily error in the 14.00 day ahead demand forecast = 2024mcm
- total NTS throughput = 57010mcm

1.5. Performance over winter 2005/06 therefore = $2024/57010 = 3.6\%$. This is the benchmark we propose using for winter 2006/07 performance.

Website incentive performance measure

1.6. It is proposed that improvements in NGG's website performance are measured equally between improvements in availability and timeliness.

Availability

1.7. Availability will be measured as being the availability of the key data published on NGG's "Daily Summary Report" webpage, for the duration of the incentive. These data include linepack data, physical flows in the NTS, nominated flows into the NTS, and forecast demand⁴⁶.

⁴⁶ <http://www.nationalgrid.com/uk/Gas/Data/dsr/>

1.8. Availability will be measured on a 24 hours a day, 7 days a week basis, and improvements in availability in winter 2006/07 compared to winter 2005/06 will be expressed in terms of a percentage reduction in downtime.

Timeliness

1.9. Timeliness will be measured for the same data fields outlined above, on the following basis:

| Data report | Measure |
|--|--|
| Linepack (NB92) | % of occasions data posted within 20 minutes of real time |
| NTS nominated flows (NTSAFF) | % of occasions data posted within 20 minutes of real time |
| NTS actual flows (NTSAPF) | % of occasions data posted within 20 minutes of real time |
| Demand forecast (day ahead and within day) | % of occasions 14:00, 02:00 (day ahead) 12:00, 15:00, 18:00 and 21:30 (within day) publication deadlines met |

1.10. These measures will be calculated over the duration of the incentive period, and averaged to provide a composite measure of timeliness.

Calculation of website performance measure

1.11. The overall performance measure will be calculated by taking an average of the percentage improvement in both availability and timeliness in winter 2006/07 compared to winter 2005/06.

Worked example

1.12. The website performance incentive uses average percentage incremental improvement in website availability and timeliness compared to winter 2005/06 as its performance measure.

Winter 2005/06 performance

1.13. From the data presented in Chapter 2, we have developed benchmarks for NGG's performance in terms of both availability and timeliness. These are:

- **Availability.** NGG data on the availability of NTSAPF over winter 2005/06 provides a suitable proxy for availability over this period. This is calculated as being 4 hours 48 minutes of downtime (equivalent to 99.89% availability over the period 1 October 2005 to 31 March 2006).
- **Timeliness.** Averaging the percentage of occasions linepack, NTS nominated and NTS actual flow data were updated on the website within 20 minutes, and

the percentage of occasions forecast demand was posted within specified timescales gives a performance metric for winter 2005/06 of 44.25%⁴⁷.

1.14. This calculation is outlined in Table 3 below:

Table 3: Calculation of timeliness benchmark

| Data report | Measure | Winter 2005/06 performance |
|--|--|----------------------------|
| Linepack (NB92) | % of occasions data posted within 20 minutes of real time | 29% |
| NTS nominated flows (NTSAFF) | % of occasions data posted within 20 minutes of real time | 38% |
| NTS actual flows (NTSAPF) | % of occasions data posted within 20 minutes of real time | 46% |
| Demand forecast (day ahead and within day) | % of occasions 14:00, 02:00 (day ahead) 12:00, 15:00, 18:00 and 21:30 (within day) publication deadlines met | 64% |
| Average performance (benchmark) | | 44.25% |

Winter 2006/07 performance, and incentive performance calculation

1.15. The following table illustrates:

- the benchmark level of performance measure, for both website availability and timeliness
- an example of winter 2005/06 performance, and
- an illustration of how the average percentage improvement in availability and timeliness will be calculated.

Table 4: Calculation of percentage improvement in website performance

| Performance measure | Winter 2005/06 performance | Example - winter 2006/07 performance | Percentage improvement |
|--------------------------------|---|---|------------------------|
| Availability | 4 hours 48 minutes downtime (99.89% availability) | 3 hours 30 minutes downtime (99.92% availability) | 27% |
| Timeliness | 44.25% | 56.25% | 27% |
| Average percentage improvement | | | 27% |

⁴⁷ This represents an average of 29% (linepack), 46% (NTS nominated flows), 38% (NTS actual flows) and 64% (forecast demand).

1.16. In the above example, the average percentage improvement of both availability and timeliness equals 27%. This is the "target" level of performance improvement, indicated in Chapter 4 as triggering an incentive payment of £1m under Option 1 and £2m under Option 2.

1.17. Note that placing a target on the average percentage improvement of availability and timeliness gives NGG an amount of flexibility in the way in which improvements in the performance of its website are delivered (as improvements in availability and timeliness are given equal weighting).

Appendix 6 - Quality of service incentives

1.1. We consider quality of service to be one of our key priorities in relation to network regulation. In order to ensure that the relevant network companies deliver an appropriate level of service to customers, we have placed financial incentives on their quality of service performance. One such example is the incentives which are in place for the electricity distribution network operators (DNOs).

1.2. These incentives focus on:

- the number of customer interruptions;
- the number of customer minutes lost; and
- the quality of telephone response.

1.3. The interruptions incentive scheme sets targets for the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost per customer (CML) and has symmetric annual rewards and penalties depending on each DNO's performance against their targets. This aspect of the scheme involves a revenue exposure of +/-3 per cent, depending upon performance, which impacts upon the DNO's allowed revenue under their price control⁴⁸.

1.4. Performance against the telephony incentive is based on the results of an ongoing customer survey. The survey measures customer satisfaction on a scale of 1 to 5, with 5 representing the top performance ranking. DNOs are subject to a sliding-scale incentive based on the results of the survey as follows:

- if their annual mean performance rating falls below 4.1, they will be exposed to a penalty of up to a maximum of 0.25 per cent of revenue; and
- if their annual mean performance rating is greater than 4.5, there will be a reward of up to 0.05 per cent of revenue.

1.5. Since the introduction of these incentive schemes in April 2002 the underlying average number of customer interruptions per 100 customers has fallen by 16 per cent and the number of customer minutes lost has reduced by 16 per cent (this improvement is based on 2004/05 figures, initial figures for 2005/06 indicate an even better position). There has also been an improvement in the quality of telephone response since the introduction of the scheme⁴⁹.

1.6. In addition to these existing electricity DNO incentives, the creation of similar arrangements for the gas distribution companies is being considered as part of the ongoing price control review. National Grid Electricity Transmission (NGET) also has transmission network reliability incentives. These incentives encourage NGET to reduce the level of energy unsupplied due to unreliability of the transmission network.

⁴⁸ There is a lag of 2 years before these penalties/rewards feed into allowed revenue.

⁴⁹ The latest quality of service report ('2004/05 Electricity Distribution Quality of Service Report', November 2005) in relation to these incentives can be found at:
http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13039_258_05.pdf?wtfrom=/ofgem/work/index.jsp§ion=/areasofwork/qualityservice/qualityofsupply.

1.7. Further details concerning the quality of service incentives can be found on the Quality of Service section of Ofgem's website⁵⁰.

⁵⁰ See: <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/qualityservice>.

Appendix 7 - 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.⁵¹

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 accordingly⁵².

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 them⁵³; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.⁵⁴

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:

⁵¹ entitled "Gas Supply" and "Electricity Supply" respectively.

⁵² 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.

⁵³ 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.

⁵⁴ The Authority may have regard to other descriptions of consumers.

-
- Promote efficiency and economy on the part of those licensed⁵⁵ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
 - 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 Regulation⁵⁶ 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.

⁵⁵ or persons authorised by exemptions to carry on any activity.

⁵⁶ Council Regulation (EC) 1/2003

Appendix 8 - Glossary

B

Beach

Gas is delivered to seven reception points (called beach terminals) by gas producers operating offshore facilities from over 100 fields beneath the sea around the British Isles.

D

Daily Metered (DM)

Supply points with meters which read volumes of gas consumed either on a continuous or on a daily basis.

Demand Side Working Group (DSWG)

Group set up by Ofgem intended to encourage demand side participation within the wholesale electricity market. The group considers, amongst other things, ways to remove barriers to entry to the market.

Distribution Network Operators (DNOs)

Holders of electricity distribution licences. Licences are granted for specified geographical areas. Currently there are seven companies who own the fourteen licensed distribution areas.

Downtime

The period over which a data field or page on NGG's website is not available.

G

Gas Day

The period from 06:00 hours on one day until 06:00 hours on the following day.

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 which comprise twelve LDZs.

Gemini

Run by xoserve, Gemini delivers transportation transactional services on behalf of each of the Network companies to the gas Shipper. Gemini enables gas shippers to carry out gas nominations, energy balancing and exit capacity bookings.

I**I & C users**

Industrial and commercial users of the gas network.

Information Exchange Server (IE3)

A system supporting National Grid's website.

Interconnector

The bi-directional gas pipeline link between Bacton in Great Britain and Zeebrugge in Belgium.

L**Linepack**

The volume of gas within the National or Local Transmission System at any time.

Liquefied Natural Gas (LNG)

Gas stored and / or transported in liquid form.

Local Distribution Zones (LDZs)

LDZs are low pressure pipeline systems which deliver gas to final users and Independent Gas Transporters. There are twelve LDZs which take gas from the high pressure transmission system for onward distribution at lower pressures.

M**MCM**

Millions of standard cubic metres.

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)

A high-pressure system consisting of terminals, compressor stations, pipeline systems and offtakes. Designed to operate at pressures up to 85 bar. NTS pipelines transport gas from terminals to NTS offtakes.

NB92 - System Status Information

This report, available on NGG's website, shows for a single gas day the opening linepack, two projected closing linepack figures and demand.

NTSAFF - Aggregate Forecast Flows into the NTS

This report, available on NGG's website, shows for a single gas day, the forecast end of day aggregate flows into the NTS, as calculated at each hour.

NTSAPF - Aggregate Physical Flows into the NTS

This report available on NGG's website shows for a single gas day, the instantaneous physical aggregated flows into the NTS, for each hour, derived from instantaneous flows. For Bacton, Interconnector and Storage Facilities, this report only aggregates quantities of gas that have entered the NTS and does not take into account any Gas that may have exited the NTS through these points.

O

On-the-day Commodity Market (OCM)

The mechanism set up as part of the Network Code in which gas can be traded in order to assist balancing of the gas system. This market enables anonymous financially cleared on the day trading between market participants.

S

SAP

System Average Price

Shippers

A person other than a Transporter who is for the time being bound by the UNC pursuant to a Shippers Framework Agreement.

SISR03 (Forecast Demands)

This report is available on NGG's website and shows the latest available approved forecast demand (in mcm) for each of the LDZ's (Local Distribution Zones) for a single gas day, and also the sum of all LDZ forecast demand. Additionally the projected throughput (in mcm) for the same gas day is also displayed.

Sliding Scale

This term is used generically to describe incentive schemes which involve profit (and loss) sharing around a fixed target costs, such as the current form of SO incentives in gas and electricity.

System Operator (SO)

The system operator 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**Therm**

An imperial unit of energy largely replaced by the metric equivalent equal to 29.3071 kilowatt hours.

Transporter

National Grid NTS or a GDN.

U**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.

Users

Under the UNC, a User is a person other than a Transporter who is bound by the Code pursuant to a Shippers Framework Agreement or a GDN User.

Appendix 9 - 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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