

## 2005-06 Gas Distribution Quality of Service Report

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**Target audience:** Consumers and their representatives, gas distribution networks (GDNs) and any other interested parties

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### **Overview:**

Quality of service is a key priority for both gas and electricity consumers. Ofgem is continuing to develop this area of regulation for distribution networks to ensure that an appropriate level of service is provided.

The objectives of this report are to summarise the key mechanisms in place to protect customers in terms of the quality of service they receive from Gas Distribution Network Operators (GDNs) and to publish information on the main quality of service indicators reported by GDNs under the Regulatory Instructions and Guidance (RIGs) requirements.

This is the fourth report Ofgem has published on the quality of service performance of gas transporters. It is a retrospective report for 2005/06.

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**Contact name and details:** Angela Bourke, Outputs & Quality of Service Manager

**Tel:** 020 7901 7306

**Email:** [angela.bourke@ofgem.gov.uk](mailto:angela.bourke@ofgem.gov.uk)

**Team:** Gas Distribution

## Context

Ofgem seeks to regulate gas distribution networks (GDNs) effectively as competition in this area is not practicable. Regulation is necessary to protect the interest of consumers.

We use incentive regulation to keep GDNs' costs down. To balance the incentives to reduce costs, Ofgem also specifies a number of outputs and standards of performance which GDNs must deliver.

Under their licence (Standard Special Condition D9), GDNs are required to collect information regarding their delivery of the outputs specified and report this to Ofgem. The Regulatory Instructions and Guidance ("RIGs") published by Ofgem, includes definitions and guidance for collating information and data on these outputs.

This report summarises GDNs performance against these quality of service outputs for the period from 1 April 2005 until 31 March 2006.

## Associated Documents

- Gas Distribution Quality of Service Regulatory Instructions and Guidance, March 2005 (Ref. No. 100/05):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13055\\_259\\_05.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13055_259_05.pdf)
- Gas Distribution Price Control Review Initial Consultation, December 2005 (Ref. No. 259/05):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/10970\\_10005.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/10970_10005.pdf)
- Guidance for reporting on standards of performance and standard special licence condition D10 for gas distribution network operators and independent gas transporters, November 2005 (Ref. No. 254/05):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/10970\\_10005.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/10970_10005.pdf)
- 2004-05 Gas Distribution Quality of Service Report, December 2005 (Ref. No. 280/05):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13213\\_280\\_05.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13213_280_05.pdf)
- 2003-04 Gas Distribution Quality of Service Report, April 2005 (Ref. No. 119/05):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11148\\_11905.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11148_11905.pdf)
- 2002-03 Gas Distribution Quality of Supply Report, March 2004 (Ref. No. 71/04):  
[http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/6642\\_7104.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/6642_7104.pdf)

## Table of Contents

<b>Summary</b> .....	<b>1</b>
Interruptions .....	1
Consumer satisfaction surveys .....	1
Mains replacement activity.....	1
Environmental issues .....	1
Ongoing Ofgem work .....	2
<b>1. Introduction</b> .....	<b>3</b>
Purpose and structure of the document.....	3
<b>2. Background</b> .....	<b>4</b>
Introduction to the GDNs .....	4
National Grid Gas plc .....	5
Northern Gas Networks .....	5
Scotia Gas Networks .....	5
Wales and West Utilities .....	6
Independent Gas Transporters (IGTs).....	6
GDNs' quality of service and outputs arrangements .....	8
<b>3. Interruptions reporting</b> .....	<b>9</b>
GDNs' interruptions reporting measures .....	9
Data quality issues.....	9
<b>4. Consumer satisfaction surveys</b> .....	<b>11</b>
Introduction .....	11
Results from Planned (Replacement) Surveys .....	12
Results from Unplanned (Repair) Surveys.....	14
<b>5. Mains replacement and the HSE</b> .....	<b>17</b>
Introduction .....	17
Mains replacement programmes .....	17
<b>6. Environmental issues</b> .....	<b>20</b>
Introduction .....	20
Environmental reporting .....	20
<b>7. Ongoing work</b> .....	<b>22</b>
Gas Distribution Price Control Review .....	22
Standards of Performance .....	22
<b>Appendices</b> .....	<b>24</b>
<b>Appendix 1 - Mains replacement activity by GDN</b> .....	<b>25</b>
<b>Appendix 2 – The Authority’s Powers and Duties</b> .....	<b>29</b>
<b>Appendix 3 - Glossary</b> .....	<b>31</b>
<b>Appendix 4 - Feedback Questionnaire</b> .....	<b>33</b>

## Summary

Quality of service is a key priority for both gas and electricity consumers. Ofgem is continuing to develop this area of regulation for distribution networks to ensure that an appropriate level of service is provided. The aim of this report is to summarise the key mechanisms in place to protect customers in terms of the quality of service they receive from gas distribution networks (GDNs) and to publish information on the main quality of service indicators reported by GDNs under the Regulatory Instructions and Guidance (RIGs) requirements.

This is the fourth report Ofgem has published on the quality of service performance of gas transporters. It is a retrospective report for 2005/06 and sets out:

### **Interruptions**

Each GDN has provided information on the number and duration of both planned (replacement) and unplanned (emergency and repair) gas supply interruptions for each GDN in line with their obligations under the RIGs. The data shows that the majority of interruptions are for planned works and can be linked to the mains replacement programme.

### **Consumer satisfaction surveys**

Since 1 April 2005 GDNs have been required to undertake quarterly postal surveys of consumers who have experienced either a planned or unplanned gas supply interruption. The survey asks for consumers views on the service provided to them during the interruption. The first year of data is presented.

### **Mains replacement activity**

The report presents information on mains replacement activity undertaken and outlines the total length of mains decommissioned and installed since 2002-03. Additional information showing the annual breakdown of this information for each GDN is presented in Appendix One.

### **Environmental issues**

Each GDN must report on a range of environmental issues. The data for 2005/06 shows that emissions of methane have decreased on both low pressure and medium pressure pipes since 2004/05. This is associated with the mains replacement programme.

### **Ongoing Ofgem work**

Ofgem is undertaking a range of work regarding quality of service, including the gas distribution price control review (GDPCR) which include a review of the relevant standards of performance for gas transporters. An initial impact assessment outlining options for increasing the scope and improving the measurement of the quality of service outputs will be published in November 2006.

## 1. Introduction

### Chapter Summary

This chapter sets out the purpose and structure of the document and provides some background information on GDNs outputs and quality of service arrangements.

### Purpose and structure of the document

1.1. The purpose of this report is to summarise GDNs performance against quality of service outputs for the period from 1 April 2005 until 31 March 2006. The areas covered by this report include:

- Chapter 2 - background information on the GDNs and their outputs and quality of service arrangements,
- Chapter 3 - data on the number and duration of interruptions for each GDN,
- Chapter 4 - results from GDN consumer satisfaction surveys,
- Chapter 5 - information on mains replacement activity;
- Chapter 6 - GDNs' environmental performance,
- Chapter 7 - the current Gas Distribution Price Control Review (GDPCR) and Ofgem's ongoing work in this area.

1.2. This report also provides background information on the key mechanisms in place to protect consumers with regard to the quality of service they receive from GDNs.

1.3. This is the fourth Quality of Service report Ofgem has published. It is the first report since National Grid Gas sold four of its gas distribution businesses and since Ofgem introduced the requirement for GDNs to undertake quarterly consumer satisfaction surveys.

1.4. Previous Gas Distribution Quality of Service reports can be found on the Ofgem website: [www.ofgem.gov.uk](http://www.ofgem.gov.uk).

## 2. Background

### Chapter Summary

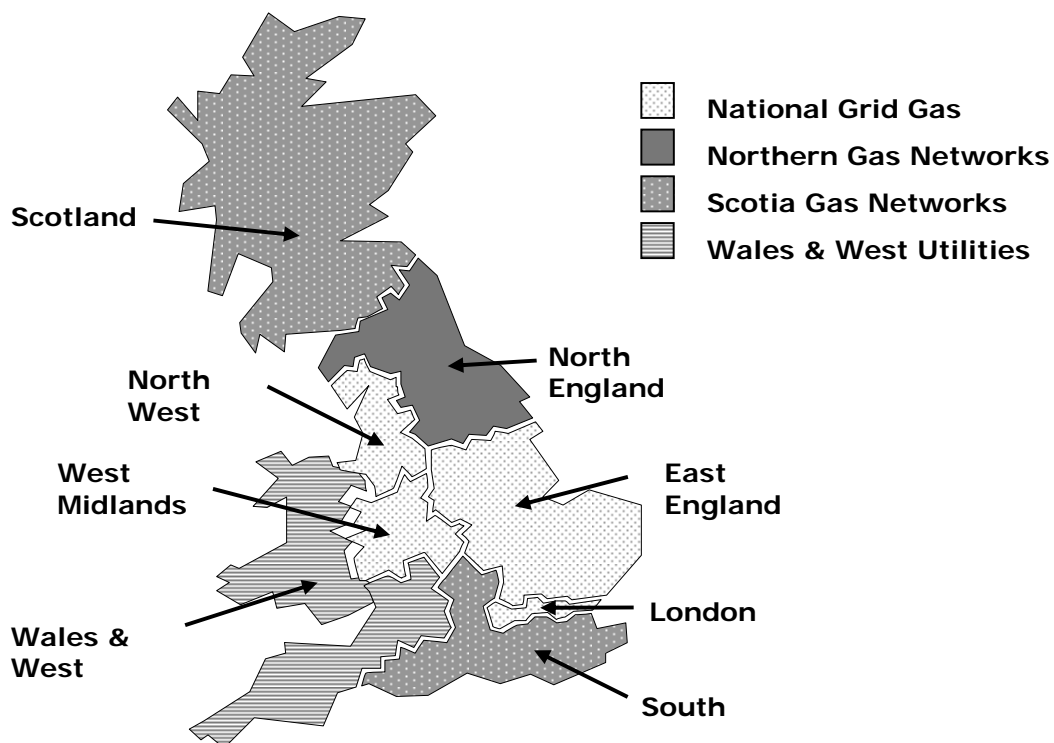
This chapter provides background information on the GDNs and their output and quality of service arrangements.

### Introduction to the GDNs

2.1. Suppliers trade gas in a competitive wholesale market, which is then transported to customers' premises through gas transmission and distribution networks. GDNs take gas from exit points on the high pressure National Transmission System (NTS) and transport it at lower pressures to end users.

2.2. There are eight gas distribution networks, which are owned by four gas distribution companies – National Grid Gas (NGG), Northern Gas Networks (NGN), Scotia Gas Networks (SGN), and Wales & West Utilities (WWU). Figure 2.1 shows the eight networks and their owners.

**Figure 2.1 - Map of gas distribution networks and gas distribution companies**



### **National Grid Gas plc**

2.3. NGG is part of National Grid, which owns the NTS, the majority of the UK electricity transmission network and 4 GDNs – North West, East England, West Midlands and London. These are the GDNs that NGG elected to retain when it conducted its sale of gas distribution networks. Prior to the sale, NGG owned all eight GDNs.

2.4. The GDNs owned by NGG extend from London (north of the Thames) through eastern and central England, and as far north as the Lake District. Their key characteristics are set out in Tables 2.1 and 2.2.

2.5. National Grid operates its gas distribution business and its gas transmission business as two separate businesses within a single legal entity (National Grid Gas plc). The distribution business and the transmission business each have their own gas transporter's licence. NGG's four GDNs share a single licence, but each has a separate price control.

### **Northern Gas Networks**

2.6. Northern Gas Networks (NGN) owns North England GDN. NGN purchased North England GDN from NGG on 1 June 2005.

2.7. North England GDN extends south from the Scottish border to South Yorkshire. The key characteristics of North England GDN are set out in Tables 2.1 and 2.2.

2.8. NGN is owned by a consortium led by Cheung Kong Infrastructure Holdings Ltd and including United Utilities plc. It has contracted out its asset management services to United Utilities Operations Limited (UUOL) a subsidiary of United Utilities, which also owns and operates the electricity distribution network in North West England. NGN itself has approximately 50 staff members who are responsible for managing the network and overseeing the contract with UUOL.

### **Scotia Gas Networks**

2.9. Scotia Gas Networks (SGN) owns two GDNs, South of England and Scotland. SGN purchased South of England GDN and Scotland GDN from NGG on 1 June 2005.

2.10. South England GDN extends from Milton Keynes, to Dover in the east and Lyme Regis in the west, including London boroughs to the south of the River Thames. Scotland GDN covers Scotland, which is the largest GDN by area but the smallest in terms of their Regulatory Asset Value. It includes five independent networks which are not connected to the distribution system due to their location. The key characteristics of SGN's networks are set out in Tables 2.1 and 2.2.

2.11. SGN's two networks are contained within two wholly-owned legal entities known as Scotland Gas Networks and Southern Gas Networks. Scotland Gas Networks and Southern Gas Networks each has its own gas transporter's licence.

2.12. SGN is owned by a consortium made up of Scottish and Southern Energy plc, Borealis Infrastructure Management Inc and Ontario Teachers Pension Plan. It receives a number of services, such as corporate services, from service companies established as part of the Scottish & Southern Energy group. Scottish & Southern Energy owns and operates electricity distribution networks in Scotland and southern England, as well as gas shipping, electricity generation and gas and electricity supply businesses.

### **Wales and West Utilities**

2.13. Wales and West Utilities (WWU) owns Wales and West GDN. WWU purchased Wales and West GDN from NGG on 1 June 2005.

2.14. Wales and West GDN encompasses Wales and a large part of south-west England from Swindon to the tip of Cornwall. The key characteristics of Wales and West GDN are set out in Tables 2.1 and 2.2.

2.15. WWU is owned by a consortium led by the Macquarie European Infrastructure Fund. It is the only GDN owner that is independent from other UK gas and electricity network businesses.

### **Independent Gas Transporters (IGTs)**

2.16. There are also a number of smaller Independent Gas Transporters (IGTs) in Great Britain. IGTs operate relatively small local distribution networks. There are fourteen companies that hold an IGT licence. These licensees are often part of larger groups which manage more than one IGT licence, resulting in only six IGT businesses with approximately 700,000 customers connected to their networks.

**Table 2.1 - GDNs' customer numbers for financial year 2005/06**

		NGG				NGN	SGN		WWU	TOTAL
		East	London	North West	West Midlands	North	Scotland	South	W&W	
<b>Customers</b>	Domestic	3,785,510	2,170,116	2,582,472	1,869,744	2,408,712	1,675,398	3,852,875	2,315,128	20,659,955
	Non-Domestic	113,089	88,953	79,787	56,280	73,172	50,686	126,784	74,670	663,421
	Total	3,898,599	2,259,069	2,662,259	1,926,025	2,481,885	1,726,084	3,979,659	2,389,798	21,323,376

**Table 2.2 - GDNs' key network characteristics for financial year 2004/05**

		NGG				NGN	SGN		WWU	TOTAL
		East	London	North West	West Midlands	North	Scotland	South	W&W	
<b>Network lengths (kms)</b>	Local Transmission System (LTS)	2,465	685	952	925	1,194	1,299	1,735	2,412	11,667
	Intermediate & Medium Pressure	7,944	1,974	3,626	3,154	4,325	4,848	7,621	2,896	36,388
	Low pressure	38,487	19,933	29,855	18,391	31,122	18,898	39,891	29,093	225,670
	Total length of mains	48,897	22,592	34,433	22,470	36,640	25,045	49,247	34,401	273,725

<b>Network materials* (kms)</b>	Cast/Spun Iron	14,584	8,855	12,048	9,583	11,756	6,821	18,115	9,253	91,014
	Ductile Iron	2,931	1,863	1,744	1,377	3,666	957	1,866	2,488	16,891
	Polyethylene (PE)	25,811	10,231	17,995	8,948	17,846	13,094	23,552	16,592	134,067
	Other	3,107	958	1,694	1,638	2,179	2,874	3,980	3,655	20,086

\* Does not include Local Transmission System (LTS) lengths.

## **GDNs' quality of service and outputs arrangements**

2.17. GDNs are natural monopolies. Regulation is necessary to protect the interest of consumers. Ofgem uses incentive regulation to encourage GDNs to reduce costs and lower charges to customers. However, to balance GDNs incentives to reduce costs, we also specify a number of quality of service outputs and standards which GDNs must deliver, to ensure GDNs provide an appropriate level of service to consumers.

2.18. The current quality of service and outputs arrangements have been implemented through a number of different frameworks. This report focuses on the outputs framework, established under each GDNs' licence (Standard Special Condition D9). This requires GDNs to report performance on a number of key quality of service indicators, including:

- The number and duration of interruptions,
- Consumer satisfaction surveys,
- Mains replacement activity; and
- Environmental performance.

2.19. The Regulatory Instructions and Guidance ("RIGs") published by Ofgem<sup>1</sup>, sets out detailed definitions and guidance for collecting and reporting this information to ensure that GDNs measure and report information on the specified outputs on a consistent and regular basis.

2.20. Each GDN has further duties under its licence to maintain the 'efficient and economic operation of its pipeline system'. The Health and Safety Executive (HSE) enforces requirements under the Pipelines Safety Regulations<sup>2</sup> in relation to maintaining the network and under the Gas Safety (Management) Regulations<sup>3</sup> in relation to gas escapes.

2.21. This report summarises GDNs' performance against these quality of service outputs for the period from 1 April 2005 until 31 March 2006.

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<sup>1</sup> Gas Distribution Quality of Service Regulatory Instructions and Guidance Version 3, Ofgem, March 2005, 100/05

<sup>2</sup> The Pipelines Safety Regulations 1996, SI No 825

<sup>3</sup> Gas Safety (Management) Regulations 1996, SI No 551

## 3. Interruptions reporting

### Chapter Summary

This chapter summarises the interruptions reporting framework for GDNs and their performance for 2005-06. It also highlights issues with the quality of this data and how this is being addressed.

### GDNs' interruptions reporting measures

3.1. As part of the GDN output reporting framework, they have been required to record and report non-contractual interruptions information to Ofgem since April 2003.

3.2. GDNs are required to report the following key interruption measures:

- The number of non-contractual supply interruptions to customers from all planned and unplanned activities per 100 customers per year; and
- The average number of customer minutes lost per interruption, resulting from non-contractual supply interruptions to customers.

3.3. The RIGs require GDNs to report non-contractual interruptions data disaggregated by cause and customer type for each network. This information is provided on both a quarterly and an annual basis.

3.4. The majority of reported interruptions can be accounted for by planned work, as illustrated in table 3.1. The majority of these interruptions are due to the mains replacement programme agreed with the HSE (see Chapter 5).

**Table 3.1: Reported number of non-contractual interruptions 2005/06**

All GDNs	Reported number of interruptions per 100 customers		
	2003-04	2004-05	2005-06
Type of interruption			
Planned interruptions	0.79	1.04	1.37
Unplanned interruptions	0.14	0.25	0.24
<b>Total</b>	<b>0.92</b>	<b>1.29</b>	<b>1.61</b>

### Data quality issues

3.5. During the course of 2004, it became evident that the information reported by GDNs on non-contractual interruptions was not as robust as expected. As such, Ofgem commissioned an assessment of the systems used to record and report the

interruptions information to understand this issue further. Wilcock Consulting was appointed to undertake this assessment in April and May 2004. The final report is available on Ofgem's website<sup>4</sup>.

3.6. This assessment highlighted that the reported number of interruptions is understated and the duration of interruptions is significantly overstated due to problems with the data and the way that it is collected.

3.7. Some progress has been made through changes to the reporting requirements in the RIGs for the number and duration of non-contractual supply interruptions. A revised version of the RIGs was published in March 2005 which took effect from 1 April 2005.

3.8. The GDNs have advised that the changes to RIGs have improved both the accuracy and completeness of the data reported and that further improvements in the quality of this data can be expected in future. Ofgem also agrees that this is an area where further improvement can be made.

3.9. At the last price control review, Ofgem proposed the introduction of an interruption incentive scheme similar to the one introduced for the electricity DNOs. Since then it has become clear that such a scheme is not appropriate because interruptions are less frequent and generally related to planned replacement work.

3.10. Nevertheless, it may be appropriate to strengthen GDNs incentives in certain areas, for example, through minimum targets for interruption performance or in relation to data quality. This is being considered as part of the current gas distribution price control review for the period from 2008-13.

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<sup>4</sup> An assessment review of Transco's measurement systems and RIGs reporting: Final report by Wilcock Consultants, September 2004

## 4. Consumer satisfaction surveys

### Chapter Summary

This chapter summarises the results of quarterly consumer satisfaction surveys which GDNs have been required to undertake since 1 April 2005.

### Introduction

4.1. Ofgem introduced, in April 2005, a requirement on the GDNs to carry out quarterly postal consumer satisfaction surveys. The GDNs are required to carry out two separate surveys to assess consumer satisfaction with work associated with planned (replacement) and unplanned (emergency and repair) interruptions to gas supplies. GDNs are required to use a sample size sufficient to ensure that at least 100 surveys are completed and returned per quarter for each survey type (planned and unplanned).

4.2. These surveys cover performance in three key areas:

- Communication,
- The inconvenience caused by the interruption, and
- The professionalism and efficiency of the work carried out in restoring supply.

4.3. Data obtained from these surveys enables Ofgem to better understand any areas of concern with the quality of the service delivered by GDNs in this area and provides a comparable measure of performance across the different networks. The detailed requirements for carrying out the surveys and reporting the results are also set out in the RIGs.

4.4. The results of the consumer satisfaction surveys for 2005-06 are discussed from paragraph 4.6 onwards. As this is the first year of results, we have only commented where there are significant differences in GDNs' performance. As more surveys are completed and more data is collated, we will be able to make more meaningful comparisons regarding GDNs performance both relative to each other and over time.

4.5. The results of the gas customer satisfaction surveys will be published each year by Ofgem. In addition to this, each GDN is also required to publish their own quarterly and annual results on their websites<sup>5</sup>.

## Results from Planned (Replacement) Surveys

4.6. The main survey questions assess respondents' satisfaction with the GDNs' performance in the following areas:

- The duration of the interruption,
- Advanced notification of the works requiring the interruption,
- Communication from the GDN whilst the works were being carried out,
- Skill and professionalism of the workforce that carried out the work, and
- Overall quality of the work carried out.

4.7. Customers were asked to score the GDNs in each of these areas using the following scale: Very satisfied (5), Satisfied (4), Neither (3), Dissatisfied (2) and Very dissatisfied (1).

4.8. A satisfaction score was calculated for each attribute and an overall customer satisfaction score was calculated by combining the scores for each question. A number of questions were asked to establish the profile of customers that responded to the survey. The replacement survey also includes a question regarding whether or not the respondent received notification before the work was carried out.

4.9. Table 4.1 summarises the scores GDNs received in each attribute for 2005-06 for interruptions resulting from planned (replacement) work. Figure 4.1 shows the combined customer satisfaction score for interruptions resulting from planned work,

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5 National Grid Gas - <http://www.nationalgrid.com/uk/Gas/OperationalInfo/operationaldocuments/customersurvey/>

Northern Gas Networks - <http://www.northerngasnetworks.co.uk/cms/54.html>

Scotia Gas Networks - [http://www.scotiagasnetworks.co.uk/index.aspx?id=54&rightColHeader=8&rightColContent=15&rightColFooter=237&TierSlicer1\\_TSMMenuTargetID=21&TierSlicer1\\_TSMMenuTargetType=4&TierSlicer1\\_TSMMenuID=6](http://www.scotiagasnetworks.co.uk/index.aspx?id=54&rightColHeader=8&rightColContent=15&rightColFooter=237&TierSlicer1_TSMMenuTargetID=21&TierSlicer1_TSMMenuTargetType=4&TierSlicer1_TSMMenuID=6)

Wales & West Utilities - <http://www.wwestutilities.com/survey.asp?GroupKeyPos=01,04,04>

along with the confidence intervals<sup>6</sup> for these results (shown in figure 4.1 as red brackets).

**Table 4.1 - 2005-06 satisfaction scores for planned interruptions**

GDN		Duration of interruption	Advanced notice of work	Communication from the GDN	Skill and professionalism of workforce	Overall quality of work	Average
NGG	East of England	3.68	4.11	3.76	4.11	4.05	3.94
	London	3.47	3.86	3.47	3.82	3.81	3.68
	North West	3.46	3.95	3.51	3.83	3.78	3.70
	West Midlands	3.72	4.12	3.79	4.04	4.04	3.94
NGN	North of England	3.46	3.97	3.58	3.86	3.82	3.74
SGN	Scotland	3.91	4.15	3.79	3.99	3.99	3.97
	South of England	3.77	4.07	3.74	3.99	3.93	3.90
WWU	Wales & West	3.90	4.17	3.86	4.10	4.03	4.01

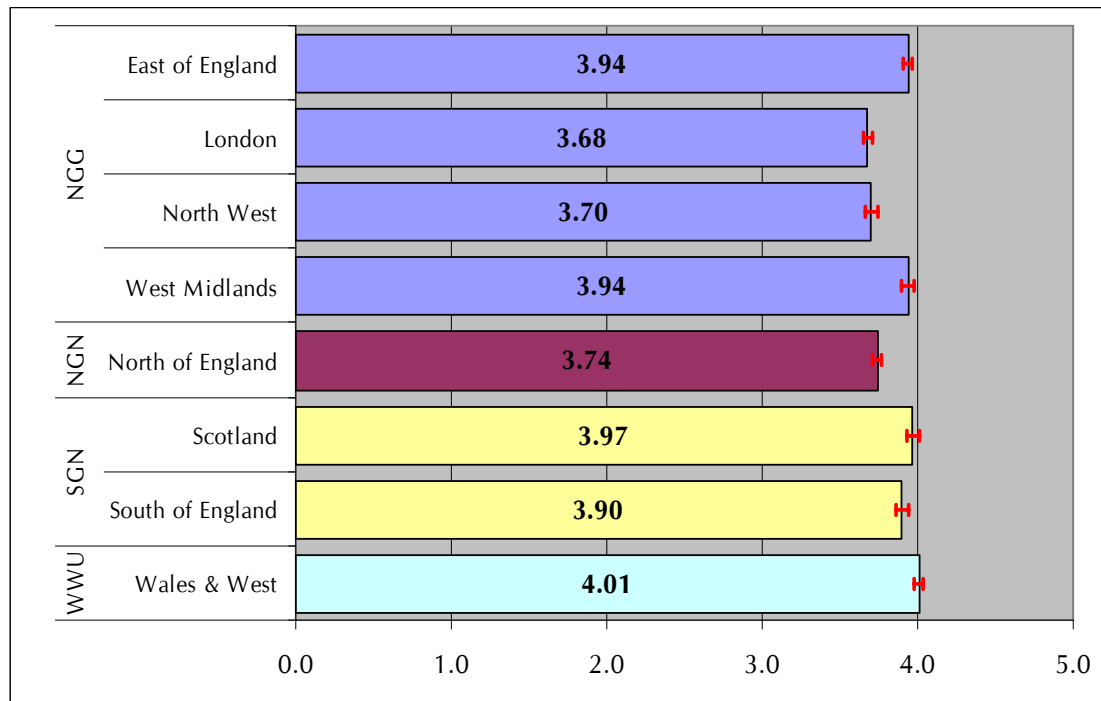
4.10. WWU achieved the highest average customer satisfaction score for planned interruptions, scoring highest in three of the five areas. WWU's score was significantly higher than all other GDNs except Scotland.

4.11. The London, North West and North of England networks received the lowest customer satisfaction scores for each attribute and therefore the lowest overall combined satisfaction scores. These three networks achieved significantly lower satisfaction scores than all the other GDNs.

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<sup>6</sup> The confidence interval, or margin of error, is a range within which there is a 95% chance that the true value for the population as a whole falls. If the confidence intervals for two samples do not overlap, this indicates a statistically significant result.

**Figure 4.1 - Average satisfaction scores for planned interruptions**



### Results from Unplanned (Repair) Surveys

4.12. As with the planned (replacement) survey, the main survey questions for unplanned (emergency and repair) interruptions assess respondents' satisfaction in the following areas:

- The duration of the interruption;
- Communication from the GDN whilst the works were being carried out;
- Skill and professionalism of the workforce that carried out the work; and
- Overall quality of the work carried out.

4.13. Respondents use the same scale when answering these questions. Again a satisfaction score is calculated for each attribute along with an overall combined customer satisfaction score.

4.14. Table 4.2 summarises the scores GDNs received in each of these attributes for 2005-06 for interruptions resulting from unplanned (repair) work.

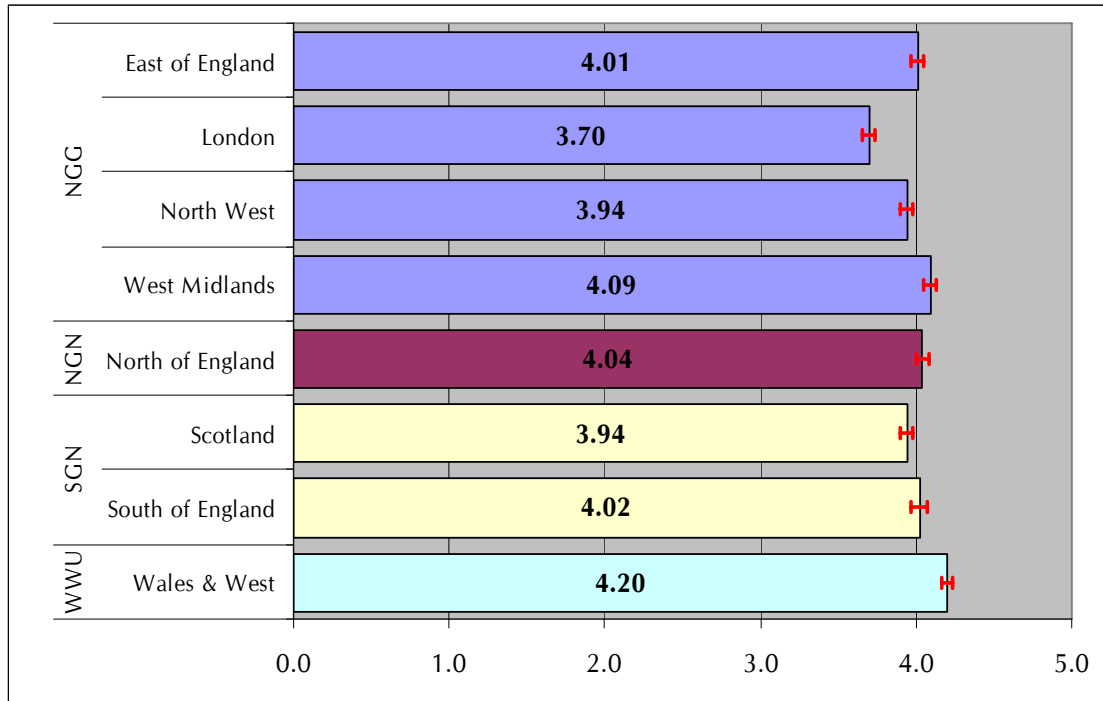
**Table 4.2 - 2005-06 satisfaction scores for unplanned interruptions**

GDN		Duration of interruption	Communication from the GDN	Skill and professionalism of workforce	Overall quality of work	Average
NGG	East of England	3.75	3.91	4.22	4.15	4.01
	London	3.27	3.62	3.99	3.93	3.70
	North West	3.67	3.83	4.16	4.10	3.94
	West Midlands	3.81	4.00	4.31	4.25	4.09
NGN	North of England	3.72	4.03	4.24	4.18	4.04
SGN	Scotland	3.65	3.85	4.18	4.07	3.94
	South of England	3.69	3.95	4.24	4.20	4.02
WWU	Wales & West	3.97	4.14	4.37	4.31	4.20

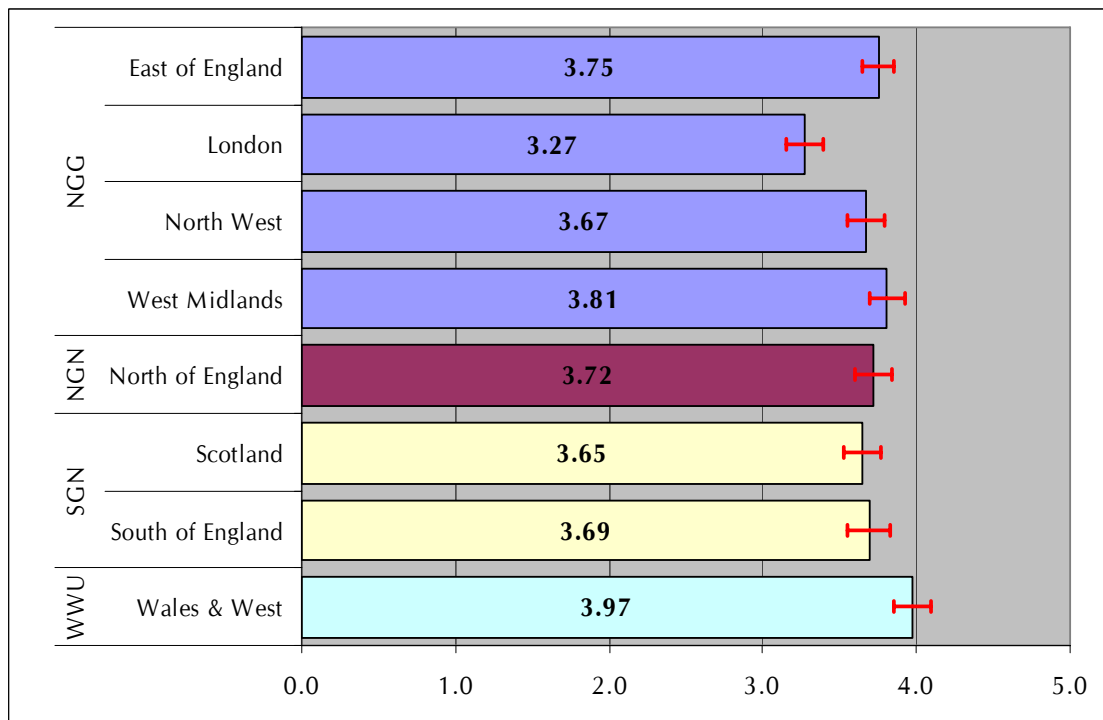
4.15. For all GDNs with the exception of the Scotland network, the combined satisfaction scores for unplanned interruptions were higher than those for planned interruptions. Figure 4.2 shows the combined customer satisfaction score for interruptions resulting from unplanned work, along with the confidence intervals for these results (shown in figure 4.2 as red brackets).

4.16. WWU achieved the highest satisfaction scores in each attribute and overall and the London networks scored the lowest in each area and overall. WWU's score was significantly higher than all other GDNs. In contrast, NGG's London network scored significantly lower than all the other GDNs. The London network also scored significantly lower than all other GDNs regarding consumer satisfaction with the duration of the interruption (see Figure 4.3).

**Figure 4.2 - Average satisfaction scores for unplanned interruptions**



**Figure 4.3 - Satisfaction scores for the duration of unplanned interruptions**



## 5. Mains replacement and the HSE

### Chapter Summary

This chapter provides background information regarding the mains replacement programme and summarises the programme's outcomes for 2005-06.

### Introduction

5.1. The principal risk associated with the gas distribution system is the potential to cause harm to people and damage to property through uncontrolled gas release into properties and, more rarely, subsequent explosions. The main causes of these occurrences have been found to be the sudden failure of iron pipes, either by fracture or corrosion.

5.2. There are requirements on GDNs under the Gas Safety (Management) Regulations, in relation to the escape of gas, and under the Pipeline Safety Regulation, on mains replacement activity, enforced by the HSE. These requirements impact on:

- GDNs' ability to convey gas;
- GDNs' ability to restore supplies;
- The level of planned interruptions; and
- Operational guidelines.

### Mains replacement programmes

5.3. Since the early 1970s, GDNs have undertaken a series of asset replacement programmes, which have contributed to a significant decrease in the number of incidents which have resulted in people being harmed or damage to property<sup>7</sup>. However, the fracture rate per unit length of the remaining iron main population has not decreased.

5.4. In 2001, following discussions with Ofgem and the GDNs, the HSE adopted a more precautionary approach to the replacement of iron mains located within 30 metres of property. The HSE considered that it was realistic and practicable to speed up the annual rate of mains replacement over the next 5 years so as to be in a

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<sup>7</sup> For further details on previous mains replacement programmes, see Ofgem publication 71/04 '2002/03 Gas Distribution Quality of Supply Report – March 2004'

position to complete replacement of all remaining 'at risk' iron mains within 30 years<sup>8</sup>.

5.5. Ofgem has put a mechanism in place through the price control in accordance with the HSE's targets to incentivise GDNs to carry out this work efficiently<sup>9</sup>.

5.6. Table 5.1 shows how many kilometres of mains have been decommissioned and installed since 2002-03. A breakdown of this data for each GDN is included in Appendix 1.

**Table 5.1 - GDNs mains replacement programme activity**

Total Mains Decommissioned (all GDNs) (km)					
Internal Diameter	2002-03	2003-04	2004-05	2005-06	Total
2-3"	351	486	561	619	2,017
4-5"	679	1,417	1,484	1,990	5,570
6-7"	475	439	519	474	1,907
8-9"	425	209	215	163	1,012
10-12"	452	162	176	112	902
>12"	255	125	187	170	737

Total Replacement Mains Installed (all GDNs) (km)					
External Diameter	2002-03	2003-04	2004-05	2005-06	Total
</=75mm	461	893	1,091	1,509	3,954
>75-125mm	593	973	1,017	1,284	3,867
>125-180mm	404	251	290	249	1,194
>180-250mm	347	97	137	92	673
>250-355mm	339	107	122	123	691
>355mm	151	48	83	38	320

5.7. Ofgem is carrying out an assessment of the mains replacement incentive mechanism as part of the current Gas Distribution Price Control Review. For the one year control (2007-08), we propose to update the parameters of the incentive mechanism following an assessment of efficient unit costs and real price effects.

<sup>8</sup> The Health And Safety Executive's Enforcement Policy For The Replacement Of Iron Gas Mains

<sup>9</sup> For further details on the HSE mains replacement programme, see Ofgem publication 71/04 '2002/03 Gas Distribution Quality of Supply Report – March 2004'

5.8. For the main control (2008-13), we are undertaking a more fundamental review of this incentive, including an assessment of how the mains incentive mechanism has worked in practice and how effective it has been compared to the other approaches for setting allowance and incentivising the efficiency of capital expenditure. The results of this analysis will be discussed in the third consultation document to be published in November. This will also set out Ofgem's preferred options.

## 6. Environmental issues

### Chapter Summary

This chapter summarises the environmental performance for all the GDNs over the 2005-06 period.

### Introduction

6.1. Under the RIGs, GDNs are required to submit an annual environmental report to Ofgem explaining levels of carbon dioxide ("CO<sub>2</sub>"), oxides of nitrogen ("NOX") and emissions of methane ("CH<sub>4</sub>"). They are also required to report any loss of gas containment incidents reported under Control of Major Accident Hazard Regulations. Carbon dioxide and NOX are emitted from compressor stations on the high pressure transmission network. As a result of the separation of gas distribution and transmission networks, there are no compressor stations on the distribution networks, and therefore no emissions are reported.

### Environmental reporting

6.2. One of the most important direct environmental impacts of operating gas distribution networks is the emission of greenhouse gases in the form of methane lost from pipelines. Natural gas consists wholly, or mainly, of methane, which has 21 times the Global Warming Potential<sup>10</sup> of carbon dioxide.

6.3. In previous gas distribution quality of service reports, the levels of methane emissions reported were in fact natural gas emissions (of which methane would be the main component). GDNs have now amended their reporting on this measure to show both the amount of natural gas emitted (in tonnes) and the amount of this which is methane.

6.4. Tables 6.1 and 6.2 show the levels of methane emitted from both medium and low pressure pipe networks from 2002-03 to 2005-06.

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<sup>10</sup> To compare the relative climate effects of greenhouse gases the relative combustion of a gas is compared with the effect of a unit emission of carbon dioxide integrated over a fixed period of time (100 years). This factor is known as the global warming potential ("GWP"). This method has been derived by the United Nations Framework Convention on Climate Change ("UNFCCC").

**Table 6.1 - Methane emissions (tonnes) from medium pressure pipe networks due to leakage**

		2002-03	2003-04	2004-05	2005-06
NGG	East of England	3,547	3,529	3,458	3,383
	London	1,658	1,656	1,631	1,586
	North West	1,310	1,301	1,279	1,302
	West Midlands	1,571	1,545	1,479	1,501
NGN	North	1,522	1,518	1,496	1,321
SGN	Scotland	1,279	1,241	1,206	1,219
	South	2,613	2,999	2,908	2,826
WWU	Wales & West	2,508	2,094	2,047	2,005
<b>TOTAL NETWORKS</b>		<b>16,009</b>	<b>15,882</b>	<b>15,504</b>	<b>15,142</b>

**Table 6.2 - Methane emissions (tonnes) from low pressure pipe networks due to leakage**

		2002-03	2003-04	2004-05	2005-06
NGG	East of England	28,887	27,622	28,186	27,327
	London	18,382	16,429	18,111	16,642
	North West	23,129	21,876	22,507	23,871
	West Midlands	18,651	17,067	18,238	17,700
NGN	North	21,595	20,282	21,404	17,645
SGN	Scotland	13,402	11,689	12,026	12,086
	South	37,061	34,846	35,857	35,012
WWU	Wales & West	22,787	22,300	23,218	22,320
<b>TOTAL NETWORKS</b>		<b>183,895</b>	<b>172,111</b>	<b>179,547</b>	<b>172,604</b>

6.5. The tables above show that methane emissions have decreased on both the medium and low pressure networks in 2005-06 when compared to emissions in 2004-05.

6.6. The main reason for the decrease in emissions is due to the ongoing mains replacement programme, where older metal pipes more susceptible to leakage are replaced with polyethylene pipes. Some marginal increases have occurred in some networks due to the composition of natural gas and higher operating pressures which more than offset the gains arising from mains replacement.

6.7. During 2005-06 there was one incident involving the release of gas reported under Control of Major Accident Hazard Regulations 1999. This occurred in NGG's North West network at a gas holder where 15 tonnes of gas was released as a consequence of corrosion.

## 7. Ongoing work

### Chapter Summary

This chapter provides an update on the ongoing work on gas distribution quality of service, as part of the current price control review.

### Gas Distribution Price Control Review

7.1. The RPI-X framework provides a strong incentive on GDNs to reduce costs. To balance this incentive, Ofgem specifies a range of outputs and standards of performance which GDNs are required to deliver to provide protection to consumers.

7.2. Ofgem is currently undertaking the first gas distribution price control review (GDPCR) which includes setting a one year control for 2007-08 and then a further control for five years from 2008-13. As part of this main price control review, Ofgem will review existing quality of service arrangements and consider whether any revisions to these arrangements are appropriate going forward.

7.3. Ofgem is considering the following key issues with regard to GDNs outputs and quality of service frameworks:

- The appropriate scope and coverage of outputs,
- Whether there are any gaps or room for improvement in the existing arrangements, and
- Which outputs should be measured, audited and incentivised.

7.4. In the second consultation document, published in July, we proposed a number of high level options for quality of service and outputs arrangements for the period from 2008-13. Following consideration of responses to these options and further development to be informed by consumer research, we shall select a number of options to be assessed in an impact assessment. The initial qualitative impact assessment will be issued in November 2006 as part of the third consultation document.

### Standards of Performance

7.5. A number of changes were made to the guaranteed and overall standards of performance for GDNs and IGTs resulting from the sale of four of National Grid Gas plc's distribution networks and the introduction of new standards of performance for connections services.

7.6. Ofgem completed consultation on the changes to the standards of performance in 2005 and the revised guaranteed and overall standards of performance came into effect on 1 May 2005.

7.7. The revised guaranteed standards of performance are common to GDNs and IGTs and are set out in the Gas (Standards of Performance) Regulations 2005 (SI no. 1135) ("the Regulations"), as amended by the Gas (Standards of Performance) (Amendment) Regulations 2005 (SI no. 1136). Both of these documents are available on the Office for Public Sector Information website: [www.opsi.gov.uk](http://www.opsi.gov.uk).

7.8. The revised overall standards of performance for GDNs and IGTs were determined by the Authority in April 2005 and are available on Ofgem's website: [www.ofgem.gov.uk](http://www.ofgem.gov.uk).

7.9. These were separately determined for each of the GDNs and IGTs, as there are additional standards regarding the operation of the national emergency helpline and in dealing with national gas emergencies which are only applicable to GDNs.

7.10. Ofgem has published a guidance document to explain the revised Guaranteed and Overall Standards of Performance for GDNs and IGTs in more detail<sup>11</sup>.

7.11. Publication of performance against the Guaranteed and Overall Standards (GOSPs) is the responsibility of energywatch and reports for 2002-03, 2003-04 and 2004-05 can be found on their website: <http://www.energywatch.org.uk/>.

7.12. Ofgem is reviewing the appropriateness of the existing standards of performance arrangements and how these could be improved as part of the gas distribution price control review.

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<sup>11</sup> Guidance for reporting on standards of performance and standard special licence condition D10 for gas distribution network operators and independent gas transporters, Ofgem, November 2005 (Ref. No. 254/05)

## Appendices

### Index

Appendix	Name of Appendix	Page Number
1	Mains Replacement Activity by GDN	24
2	The Authority's Powers and Duties	28
3	Glossary	30
4	Feedback Questionnaire	32

## Appendix 1 - Mains replacement activity by GDN

The following tables provide a summary of how many kilometres of mains have been decommissioned and installed for each GDN each year since 2002-03.

<b>2002-03</b>										
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Mains Decommissioned</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
2-3"	34	18	88	13	60	91	16	29	351	
4-5"	136	90	75	44	103	54	100	77	679	
6-7"	80	48	35	72	65	37	74	65	475	
8-9"	57	26	47	57	67	35	79	57	425	
10-12"	64	19	45	83	66	36	79	58	452	
>12"	50	25	46	39	41	13	25	17	255	
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Replacement Mains Installed</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
</=75mm	93	29	82	18	91	61	38	49	461	
>75-125mm	92	103	80	57	85	50	84	43	593	
>125-180mm	58	27	44	59	62	30	67	58	404	
>180-250mm	42	13	29	45	66	31	60	61	347	
>250-355mm	47	15	41	77	59	15	36	50	339	
>355mm	17	19	35	27	26	8	11	8	151	

<b>2003-04</b>										
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Mains Decommissioned</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
2-3"	54	7	143	23	92	82	40	46	486	
4-5"	325	131	113	169	215	81	220	164	1,417	
6-7"	82	49	33	54	48	44	79	51	439	
8-9"	38	25	16	24	22	24	37	22	209	
10-12"	25	21	23	17	15	13	34	14	162	
>12"	30	16	20	6	23	6	13	11	125	
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Replacement Mains Installed</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
</=75mm	168	30	144	69	154	66	122	139	893	
>75-125mm	199	131	91	101	149	67	160	76	973	
>125-180mm	45	28	24	22	24	28	44	35	251	
>180-250mm	14	11	10	12	11	12	18	9	97	
>250-355mm	19	14	9	7	19	11	20	7	107	
>355mm	7	7	12	3	7	3	4	5	48	

<b>2004-05</b>										
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Mains Decommissioned</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
2-3"	54	8	161	32	125	70	48	63	561	
4-5"	334	119	149	150	218	92	247	176	1,484	
6-7"	96	50	51	55	72	62	76	58	519	
8-9"	45	19	20	28	24	23	34	22	215	
10-12"	38	19	20	22	17	12	28	20	176	
>12"	44	9	19	31	23	10	35	15	187	
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Replacement Mains Installed</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
</=75mm	230	18	161	100	181	81	139	180	1,091	
>75-125mm	200	137	142	75	158	66	164	76	1,017	
>125-180mm	50	24	39	28	36	33	47	35	290	
>180-250mm	28	15	17	17	13	12	22	13	137	
>250-355mm	32	9	15	20	13	9	9	17	122	
>355mm	15	3	11	14	8	5	25	3	83	

<b>2005-06</b>										
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Mains Decommissioned</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
2-3"	48	4	164	116	109	84	31	64	619	
4-5"	523	134	228	158	306	122	308	211	1,990	
6-7"	87	52	39	33	59	55	79	70	474	
8-9"	24	15	17	11	21	24	33	18	163	
10-12"	17	11	14	10	11	13	23	14	112	
>12"	28	6	25	13	18	12	53	16	170	
	<b>NGG</b>				<b>NGN</b>	<b>SGN</b>			<b>WWU</b>	
<b>Replacement Mains Installed</b>	<b>East</b>	<b>London</b>	<b>North West</b>	<b>West Midlands</b>	<b>North</b>	<b>Scotland</b>	<b>South</b>	<b>W&amp;W</b>	<b>TOTAL</b>	
</=75mm	322	41	205	266	226	96	131	222	1,509	
>75-125mm	290	122	192	72	191	108	226	84	1,284	
>125-180mm	40	24	32	17	31	32	45	29	249	
>180-250mm	13	7	10	8	9	10	22	13	92	
>250-355mm	18	4	12	11	15	10	40	12	123	
>355mm	4	3	9	0	4	6	11	0	38	

## Appendix 2 – The Authority's Powers and Duties

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

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.<sup>12</sup>

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly<sup>13</sup>.

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

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

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- The need to secure that all reasonable demands for electricity are met;
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them<sup>14</sup>; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.<sup>15</sup>

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:

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<sup>12</sup> entitled "Gas Supply" and "Electricity Supply" respectively.

<sup>13</sup> 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.

<sup>14</sup> 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.

<sup>15</sup> The Authority may have regard to other descriptions of consumers.

- Promote efficiency and economy on the part of those licensed<sup>16</sup> 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 Regulation<sup>17</sup> 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.

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<sup>16</sup> or persons authorised by exemptions to carry on any activity.

<sup>17</sup> Council Regulation (EC) 1/2003

## Appendix 3 - Glossary

### G

#### 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.

#### Gas Distribution Price Control Review (GDPCR)

The review of the price control applying to gas distribution networks. The review will extend the existing price control for the year 2007-8 and reset the control for the period commencing 1 April 2008.

#### Gas Transporter (GT)

The holder of a Gas Transporter's licence in accordance with the provisions the Gas Act 1986.

#### Guaranteed Standards of Performance (GSOP)

Guaranteed standards of performance set service levels that must be met in each individual case. If a gas transporter fails to provide the level of service required, it must make a payment to the consumer affected, subject to certain exemptions.

### H

#### Health and Safety Executive (HSE)

The Health and Safety Commission is responsible for health and safety regulation in Great Britain. The Health and Safety Executive and local government are the enforcing authorities who work in support of the Commission.

### I

#### Independent Gas Transporter (IGT)

IGTs are GT licence holders that own and operate small local gas networks and levy distribution charges on shippers.

### L

#### Local Transmission System (LTS)

The pipeline system operating at >7barg that transports gas from NTS offtakes to distribution systems. Some large users may take their gas direct from the LTS.

**N****National Grid Gas (NGG)**

The GT licence holder for the North West, West Midlands, East England and London GDNs. NGG also hold the GT licence for the gas national transmission system (NTS). Prior to 10 October 2005, NGG was known as Transco.

**National Transmission System (NTS)**

National Grid's high pressure gas transmission system. It consists of more than 6,400 km of pipe carrying gas at pressures of up to 85 bar (85 times normal atmospheric pressure).

**Northern Gas Networks (NGN)**

The GT licence holder for North England GDN.

**O****Overall Standard of Performance (OSOP)**

Overall standards of performance set minimum average levels of performance in areas where it is not necessarily appropriate to put in place guarantees for individual consumers. These are determined separately for each gas transporter by the Authority.

**R****Regulatory Instructions and Guidance (RIG)**

Provides a framework for the collection and provision of accurate and consistent information from the GDNs.

**S****Scotia Gas Networks (SGN)**

The GT licence holder for Southern GDN and Scotland GDN.

**W****Wales & West Utilities (WWU)**

The GT licence holder for Wales & West GDN.

**Water ingress**

An incident where water enters gas pipes resulting in a loss of gas supply.

## Appendix 4 - Feedback Questionnaire

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

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

1.2. Please send your comments to:

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