2003/04 Gas distribution quality of service report

April 2005

Summary

Quality of service is a key priority in both the gas and electricity markets. Ofgem is continuing to develop this area of regulation for distribution networks to ensure that an appropriate level of service is provided to customers. As part of the last gas distribution price control review, Ofgem developed a quality of service framework for Transco.

This is the second report Ofgem has published on the quality of service performance of gas transporters. It is a retrospective report for the 2003/04 regulatory year, and it sets out:

- reported information on the number of interruptions on Transco's distribution networks;
- information on mains replacement activity;
- environmental performance; and
- ongoing work.

The first report was published in March 2004 and can be found on our website www.ofgem.gov.uk.

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1. Introduction

1.1. 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 Transporters ("GTs"); and
- to publish information on the main quality of service indicators reported by Transco under the Regulatory Instructions and Guidance ("RIGs") requirements in 2003/04.

Structure of this report

1.2. This is an update report; more detail is included in the first gas distribution quality of supply report[1].

1.3. Section 2 outlines the structure of the gas distribution industry and sets out the geographical location of each of Transco's Distribution Networks ("DNs"). Section 3 covers supply interruption reporting; Section 4 covers mains replacement activity; Section 5 covers environmental reporting; and Section 6 outlines workstreams going forward.

Comments on this report

1.4. Ofgem is currently considering how to publish gas distribution outputs in the future, and welcomes any comments or views on how this is best achieved. Ofgem anticipates that the way in which this information is presented will develop over time to encompass other issues relating to quality of service, particularly following DN sales. Any comments should be sent by the end of June 2005 to:

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[1] See Ofgem publication 71/04 '2002/03 Gas Distribution Quality of Supply Report', March 2004

2. Background

2.1. Suppliers trade gas in a competitive wholesale market, which is then transported to customers' premises through gas transmission and distribution network infrastructure operated by GTs. Transco owns and operates the high pressure National Transmission System ("the NTS") as well as the eight DNs in Great Britain. There are a number of other smaller GTs operating in Great Britain as well. These independent GTs ("IGTs") are typically low pressure systems serving relatively small numbers of customers, and they have similar licence obligations to Transco in respect of the DNs.

2.2. DNs take gas from exit points on the NTS, and pipe gas at lower pressures to final customers. Figure 2.1 illustrates the geographic boundaries of each DN. DNs are responsible for the conveyance of gas through the lower pressure distribution system. In doing so, they have responsibility for the maintenance, development and safety of the majority of the infrastructure.

2.3. Transco is currently going through a process of selling four of its DNs. This process should be completed later this calendar year. Given that this report is retrospective for 2003/04, the sale process does not have a bearing on the information contained in this report.

Figure 2.1: Geographic boundaries of Transco's Distribution Networks

The maps in this report are based upon the Ordnance Survey map by Transco by permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office. © Crown copyright Transco 100019071

Quality of service arrangements

2.4. The mechanisms in place to maintain and monitor the levels of service received are known as quality of service arrangements. One of the elements of these arrangements is output reporting. As part of the last gas distribution price control review[2], Ofgem introduced an output reporting framework for Transco. Under this framework, Transco is required to report performance to Ofgem on a number of key quality of service indicators such as the number and duration of interruptions, as well as performance under the mains replacement programme and on environmental outputs. The detailed definitions and guidance for reporting this information are set out in the RIGs[3].

Relevant licence conditions

2.5. There are a number of licence conditions in Transco's GT Licence in respect of quality of service. These are described further in this section.

Output Reporting condition

2.6. Special Condition 36 of Transco's licence requires it to report information on outputs such as the number and duration of interruptions and performance in respect of the mains replacement programme on an annual basis. Ofgem introduced these requirements as part of the price control to require Transco to measure and report information on the specified outputs consistently across its DNs on a regular basis. The detailed definitions and guidance for reporting are set out in the RIGs, which is a subsidiary document to the licence condition.

2.7. The original version of the RIGs came into effect in April 2002. A revised version was published in February 2004[4], reflecting a modification to Transco's Network Code in respect of shipper queries.[5] Ofgem published an updated version of the RIGs in March 2005[6].

[2] See Ofgem publication 56/01 'Review of Transco's Price Control from 2002 – Final proposals, September 2001'
[3] See Ofgem publication 100/05 'Gas Distribution Quality of Service Regulatory Instructions and Guidance Version 3', March 2005
[4] See Ofgem publication 41/04, 'Regulatory Instructions and Guidance for Reporting Outputs – version 2', February 2004
[5] Transco proposed a modification to its Network Code in 2003, which resulted in a change to the RIGs in relation to reporting on performance on resolving shipper queries.
[6] See Ofgem publication 100/05 'Gas Distribution Quality of Service Regulatory Instructions and Guidance Version 3', March 2005

Code of Practice conditions

2.8. Transco also has a number of other licence conditions setting out certain codes of practice. For example, Standard Licence Condition 18 requires Transco to prepare and operate to a Code of Practice with regard to domestic customers that require special services by virtue of being blind or deaf. Standard Licence Condition 21 requires Transco to prepare and operate to a Code of Practice with regard to handling complaints from domestic customers. Further information on these conditions can be found on the Ofgem website www.ofgem.gov.uk.

2.9. There is also a duty in the GT licence for GTs to maintain the 'efficient and economic operation of its pipeline system'. The Health and Safety Executive ("the HSE") enforces requirements under the Pipeline Safety Regulations[7] in relation to mains replacement activity and under the Gas Safety (Management) Regulations[8] in relation to escape of gas.

Network characteristics

2.10. Table 2.1 provides information on the number of customers connected to each of the DNs, and also the aggregate number of customers connected to other GT networks[9]. It also provides information on the length of network by material, pressure and diameter.

2.11. The composition of the network by material will have an impact upon the levels of planned interruptions. This is due to the work being undertaken by Transco as part of the 30 year programme to replace certain iron mains at risk. This programme is explained further in Section 4.

[7] Pipeline Safety Regulations 1996 – Statutory Instrument 825.
[8] Gas Safety (Management) Regulations 1996, Statutory Instrument 551 and Gas Safety (Installations) Regulation 1998, Statutory Instrument 2451
[9] This information has not been disaggregated due to the relative size of the other GT networks compared to Transco

Table 2.1: Network Infrastructure and Customer Information for 2003/04

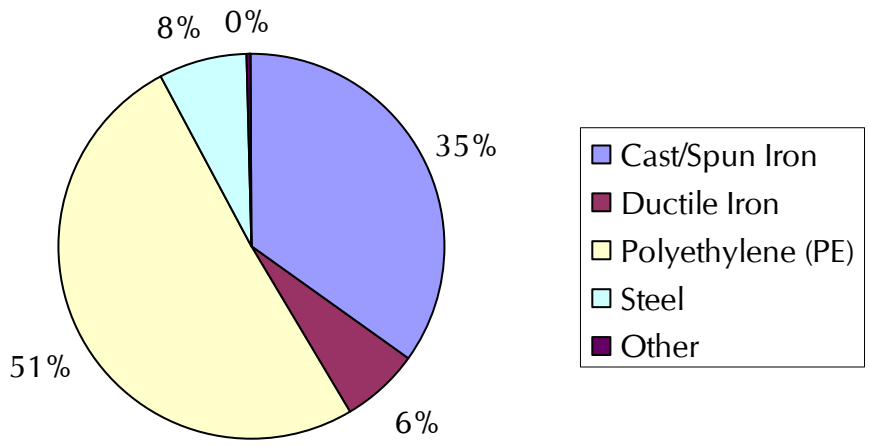
	Network	Sco	NoE	NW	EoE	WM	W&W	SoE	Lon	All Other GTs	Total
Customer type	Domestic (Priority)	61,805	61,347	98,101	124,305	88,696	81,102	120,260	67,735	4,763	708,114
	Domestic (Non-Priority)	1,588,440	2,333,473	2,478,072	3,639,621	1,775,774	2,210,861	3,696,875	2,098,654	525,444	20,347,214
	Domestic (Total)	1,650,245	2,394,820	2,576,173	3,763,926	1,864,470	2,291,963	3,817,135	2,166,389	530,207	21,055,328
	Non-Domestic	49,286	69,563	78,233	107,676	52,910	71,510	122,181	86,734	1,710	639,803
	CSEP's points at 31/12/2004	1,542	1,720	1,942	3,557	1,363	1,997	2,509	875	344	15,849
	Total Customers	1,701,073	2,466,103	2,656,348	3,875,159	1,918,743	2,365,470	3,941,825	2,253,998	532,261	21,710,980
Network material (km)	Cast/Spun Iron	7,032	12,086	12,344	15,227	9,761	8,810	18,646	9,274	0	93,178
	Ductile Iron	974	3,477	1,688	2,918	1,304	2,471	1,905	1,890	0	16,628
	Polyethylene (PE)	12,683	16,764	17,557	25,282	10,485	16,451	22,765	10,156	7,306	139,450
	Steel	1,887	2,356	1,794	3,225	1,700	4,044	3,732	1,277	6	20,020
	Other	0	4	173	0	0	4	273	0	0	454
Pressures (km)	Local Transmission system (LTS)	1,301	1,193	950	2,470	925	2,500	1,696	717	4	11,757
	Intermediate Pressure (IP)	1,122	671	378	1,804	338	1,457	1,200	269	53	7,291
	Medium Pressure (MP)	3,510	3,606	3,248	6,167	3,068	3,979	6,383	1,794	187	31,944
	Low Pressure (LP)	17,945	30,410	29,930	38,681	19,844	26,343	39,737	20,534	7,066	230,489
Diameter band (km)	<=3 inch	6,841	9,086	10,888	11,718	5,150	8,779	11,036	3,489	4,450	71,438
	>3 and <=5 inch	7,317	14,138	11,718	19,064	8,916	11,204	18,653	10,058	2,130	103,199
	>5 and <8 inch	5,104	6,890	6,319	10,487	5,319	7,239	11,126	5,292	618	58,394
	>= 8 and < 12 inch	2,210	2,706	2,452	3,227	2,241	2,853	3,914	1,737	124	21,466
	>=12 inch	1,105	1,866	2,179	2,155	1,623	1,705	2,591	2,021	22	15,267
	Totals	22,577	34,687	33,556	46,652	23,249	31,780	47,320	22,597	7,344	269,763

Note: The information reported in the "All Other GTs" column has been provided by IGTs on different bases, and for different periods, and may therefore not be directly comparable to the Transco data. The source of the "customer type" disaggregation data is based on the categorisation information provided to GTs by shippers.

Key: Sco – Scotland, NoE – North of England, NW – North West, EoE – East of England, WM – West Midlands, W&W – Wales and the West, SoE – South of England, Lon - London

2.12. Figure 2.2 below illustrates how the network infrastructure was compiled in terms of material in 2003/04. 35 per cent of the pipe infrastructure was cast or spun iron, compared to 36 per cent in 2002/03. Polyethylene pipes accounted for 51 per cent of the infrastructure compared to 50 per cent the previous year. This is due to the ongoing mains replacement programme. Further details on this programme can be found in Section 4 of this report.

Figure 2.2: Composition of network infrastructure by material for 2003/04



Costs of gas distribution

2.13. Gas distribution costs each connected customer approximately £87 annually and makes up approximately 22 per cent of a domestic customer's average gas bill[10].

[10] See Ofgem publication 78/04 'Domestic Competitive Market Review' – April 2004

3. Interruptions reporting

Introduction

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

Interruptions reporting

3.2. Transco is 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 Transco to report non-contractual interruptions data disaggregated by network, cause and customer type.

3.4. Transco has provided this information for 2003/04 on both a quarterly and an annual basis as per its licence requirement.

3.5. Over three quarters of the reported interruptions can be accounted for by planned work. This is illustrated in table 3.1. A major reason for the large proportion of planned interruptions is the mains replacement programme.

Table 3.1: Reported number of non-contractual interruptions 2003/04

Type of interruption	Reported number of interruptions per 100 customers
Planned Interruptions	0.79
Unplanned Interruptions	0.14
Total	0.92

Data quality issues

3.6. During the course of 2004, it became evident that the information reported by Transco on non-contractual interruptions was not as robust as expected. As such, Ofgem commissioned an assessment of the systems Transco uses to record and report the interruptions information to understand this issue further. The assessment also reviewed the information reported[11].

3.7. This assessment reinforced the issues associated with the robustness of the data. It 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.

3.8. Information extracted from Transco's asset record systems indicates that the actual number of interruptions is probably twice that reported in 2003/4.

3.9. As a result of the assessment, Ofgem has recently consulted on amendments to the RIGs that will, among other things, improve Transco's ability to report more accurately on the number and duration of non-contractual supply interruptions. A revised draft version of the RIGs was published in February 2005, with the final version published in March 2005[12]. Version 3 of the RIGs applies to the DNs from 1 April 2005.

[11] Ofgem appointed Wilcock Consulting to undertake the assessment in the summer 2004. Wilcock's final report 'An assessment review of Transco's measurement systems and RIGs reporting – September 2004' can be found on Ofgem's website, www.ofgem.gov.uk.

[12] See Ofgem publication 100/05 'Gas Distribution Quality of Service Regulatory Instructions and Guidance Version 3'

3.10. Table 3.2 shows Transco's estimates of the proportion of non-contractual interruptions by cause for 2003/04, which may give a more accurate picture of the proportions. These estimates have not changed from 2002/03.

Table 3.2 Transco's Estimate of the proportion of non-contractual interruptions by cause 2003/04

Interruptions by cause	Per cent
Transco initiated planned	70
Leaking service unplanned	20
Customer Requested work	7
Third party damage	2
Other	1

Source: Transco

4. Mains Replacement and the HSE

Introduction

4.1. There are requirements on GTs 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:

- GTs' ability to convey gas;
- GTs' ability to restore supplies;
- the level of planned interruptions; and
- operational guidelines.

4.2. 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.

Mains replacement programmes

4.3. Since the early 1970s, Transco has 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[13]. However, the fracture rate per unit length of the remaining iron main population has not decreased.

4.4. In 2001, following discussions with Ofgem and Transco, 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 for Transco to speed up its annual rate of mains replacement over the next 5 years so as to be*

[13] For further details on previous mains replacement programmes, see Ofgem publication 71/04 '2002/03 Gas Distribution Quality of Supply Report – March 2004'

in a position to complete replacement of all remaining 'at risk' iron mains within a total of 30 years at most."[14]

4.5. Ofgem has put a mechanism in place through the price control in accordance with the HSE's targets to incentivise Transco to carry out the work efficiently[15].

4.6. Table 4.1 shows how many kilometres of mains Transco decommissioned and installed in 2003/04 and cumulatively since 2002/03.

Table 4.1 : All Networks Mains Replacement

Mains Decommissioned (Internal Diameter)	Mains Decommissioned (km)		Replacement Mains Installed (External Diameter)	Replacement Mains Installed (km)	
	2003/04	Cumulative since 2002/03		2003/04	Cumulative since 2002/03
2-3"	486	837	</=75	893	1354
4-5"	1417	2096	>75-125	973	1566
6-7"	439	914	>125-180	251	655
8-9"	209	634	>180-250	97	444
10-12"	162	614	>250-355	107	446
>12"	125	380	>355	48	199

[14] The Health And Safety Executive's Enforcement Policy For The Replacement Of Iron Gas Mains
[15] 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. Environmental issues

Introduction

5.1. Transco is required to submit an annual environmental report for its DNs. These measures are set out in the RIGs and include methane ("CH_4") emissions, carbon dioxide ("CO_2") emissions, nitrous oxide ("N_2O") emissions and also loss of gas containment.

Environmental reporting

5.2. One of the most important direct environmental impacts of operating the gas network is the emission of greenhouse gases in the form of:

- methane lost from pipelines; and
- carbon dioxide emissions (and small amounts of N_2O) from the combustion of gas in compressor stations on the networks.

5.3. Tables 5.1 and 5.2 show the methane emitted from pipe networks in 2003/04 and 2002/03 divided into medium and lower pressure. This information is collected under the RIGs. The tables show that overall, methane emissions have decreased in 2003/04 in comparison with 2002/03. On the medium pressure networks methane emissions decreased by 170 tonnes overall (3,570 tCO_2 equivalent) and on the low pressure network by 15,139 tonnes overall (317,919 tCO_2 equivalent)[16].

[16] To compare the relative climate effects of greenhouse gases the relative contribution of a gas is compared with the effect of a unit emission of carbon dioxide integrated over a fixed time period (100 years). This factor is known as the global warming potential ("GWP"). It means that one tonne of methane has 21 times the GWP than one tonne of carbon dioxide. This method has been derived by the United Nations Framework Convention on Climate Change ("UNFCCC").

Table 5.1: Methane Emitted From pipe networks due to leakage – Medium Pressure

	Tonnes of methane	
	2003/04	2002/03
Scotland	1,627	1,677
North of England	2,018	3,300
North West	1,718	1,730
East of England	4,474	4,497
West Midlands	2,023	2,058
Wales & The West	2,713	3,243
South of England	3,766	3,277
London	2,068	795
Total Networks	20,407	20,577

Table 5.2: Methane Emitted From pipe networks due to leakage – Low Pressure

	Tonnes of methane	
	2003/04	2002/03
Scotland	15,322	17,568
North of England	26,962	28,707
North West	28,892	30,547
East of England	34,904	36,501
West Midlands	22,353	24,428
Wales & The West	28,688	29,314
South of England	43,599	46,355
London	20,519	22,958
Total Networks	221,239	236,378

5.4. There were no reported losses of containment (i.e. incidents involving the release of gas reported under COMAH[17]) in 2003/04.

[17] Control of Major Accident Hazard Regulations 1999

6. Ongoing Work

Introduction

6.1. This Section sets out some of the issues that will affect the way in which the outputs information is reported going forward under the RIGs. It also sets out some amendments to the existing Standard of Performance arrangements[18].

Outputs reporting

DN sales

6.2. In May 2003, Transco announced that it would consider the sale of one or more of its DNs. Ofgem then initiated a programme of work to explore the potential costs and benefits of such a transaction. On 20 February 2005, the Authority granted its consent to Transco's sale of four of its eight DNs, subject to approval from the HSE and the Secretary of State for Trade and Industry.

6.3. It is expected that the licences will be transferred to the new DNs with effect from 1 May 2005, with the sales being finalised by 1 June 2005.

6.4. Version 3 of the RIGs sets out the quality of service indicators that all DNs are required to report. It was effective from 1 April 2005 and amends the previous version in accordance with special conditions 35[19] and 36[20] of the gas transportation licence.

6.5. All DNs will be required to report the same outputs data, including interruptions data and environmental outputs.

6.6. In the light of the DN sales, RIGs Version 3 adds a requirement for the DNs to appoint an independent third party to undertake quarterly customer satisfaction surveys. This will increase the ability to compare the quality of service that customers receive from different DNs when their supply is interrupted.

[18] Information on performance against the standards is published by energywatch.

Interruptions

6.7. In RIGs Version 3, Ofgem has introduced new definitions for the interruptions reporting, which should increase the robustness of the reported data. Ofgem may commission further audits to investigate whether these new definitions have actually made the data more robust.

Standards of Performance

6.8. Ofgem is introducing new connections Standards of Performance[21] with effect from 1 May 2005. These standards cover all GTs, and will be set out in new Regulations and in a new licence condition.

6.9. In addition, revised Overall Standards of Performance will be implemented through a statutory direction in the light of the DN sales and the new connections arrangements from May 2005.

[19] NTS performance reporting
[20] LDZ incentive scheme and performance reporting
[21] See Ofgem publication 270/04 'Improving the provision of gas connections services by gas transporters – December 2004'