



OFGEM

**GAS DISTRIBUTION PRICE CONTROL REVIEW
ONE YEAR CONTROL**

**FINAL REPORT 3
SCOTLAND NETWORK**

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1 EXECUTIVE SUMMARY

This report has been prepared by PB Power for Ofgem based on returns made by Scotia Gas Networks (SGN) in April 2006. Our conclusions are summarised against two principal periods. The period January 2001 to March 2002 is presented based on the expenditure and workloads of all 8 Gas Distribution Networks (GDNs) as Scotland (Sc) figures are not available prior to April 2002. The period April 2002 to March 2007 is presented based on the expenditure and workloads of the Scotland Network.

1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

1.1.1 CAPEX

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	429.5	71.3	500.8
LTS & Storage 3.2	158.9	14.2	173.1
Mains (General Reinforcement) 5.2	50.8	8.2	59.0
Governors 5.2	14.1	2.2	16.3
Connections (Mains) 4.2	17.7	6.2	23.9
Connections (Services) 4.2	68.2	22.8	91.0
Other Operational Capex 6.2	27.1	4.0	31.1
Non-Operational Capex 7.2	92.7	13.6	106.3

Table 1

1.1.1.1 Categorisation of Incurred Expenditure

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	429.5	71.3	500.8
Wasteful/Unnecessary Expenditure	24.5	9.5	34.0
LTS & Storage 3.2	2.9	0.0	2.9
Mains (General Reinforcement) 5.2	0.0	0.0	0.0
Governors 5.2	0.0	0.0	0.0
Connections (Mains) 4.2	3.1	1.1	4.2
Connections (Services) 4.2	11.9	4.0	15.9
Other Operational Capex 6.2	0.0	0.0	0.0
Non-Operational Capex 7.2	6.6	4.4	11.0
Ofgem Adjusted Net Investment	405.0	61.8	466.8

Table 2

Connections, reinforcement mains and governors workload and costs over the 15 months to 31 March 2002 have been reviewed. Adjustments to connections Net Capex are proposed to take account of inefficient recovery of contributions.

1.1.2 REPEX

Net Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	367.2	105.5	472.7
Mains 8.3	276.7	77.0	353.6
Services 8.3	89.1	27.6	116.7
LTS 9.2	1.4	0.9	2.3

Table 3

1.1.2.1 Categorisation of Incurred Expenditure

Net Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	367.2	105.5	472.7
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Mains 8.3	0.0	0.0	0.0
Services 8.3	0.0	0.0	0.0
LTS 9.2	0.0	0.0	0.0
Ofgem Adjusted Net Investment	367.2	105.5	472.7

Table 4

Replacement workload and costs over the 15 months to 31 March 2002 have been reviewed. Overall, costs are consistent with the reported workload and no adjustments are proposed.

1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

1.2.1 CAPEX

The Net Capex summary figures are given in Table 5. These show the initial Allowed Net Investment from the last control, Scotland's Reported Net Investment and finally PB Power's initial recommendation for Ofgem's Adjusted Net Investment.

Overspend

- Scotland is forecast to be £82.5m (83%) in excess of the Net Capex allowance for all activities
- The combined mains and services connections Net Capex is overspent by £60.4m. This is mainly due to the forecasts which were inaccurate because competition in one-off domestic connections did not develop as expected.
- Change of scope to a major pipeline project led to an overspend of £22.6m

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency:

- Review of processes to monitor and control expenditure & projects.
- Assessment of Net Capex drivers.
- Unit cost trends and comparisons.
- Management of contract arrangements.
- Review of processes to manage direct labour productivity.
- Procurement policies and procedures.

Key Issues

- Data quality, particularly for connections activities, has inhibited analysis and comparison of cost performance.
- SGN does not have management information systems that provide detailed analysis of Net Capex performance to ensure effective monitoring and control.
- SGN are planning to buy-in all IS services to the future, hence they are not forecasting future capital expenditure

Categorisation of Incurred Expenditure

- Adjustments to connections Net Capex are substantially associated with inefficient recovery of costs via customer contributions.
- Adjustments to Non-Operations Net Capex are associated with inefficient management of IS and in particular the Quarterback Programme.

Categorisation of Forecast Expenditure

- Adjustments to connections Net Capex are substantially associated with inefficient recovery of costs via customer contributions.

Net Capex All figures £m 2005/06 prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total	2007/08
Allowed Net Investment	34.2		28.2		13.3		12.7		10.5		98.9	
Total GDN Variance	1.3	4%	-6.6	-23%	22.8	171%	41.3	325%	23.7	227%	82.5	83%
LTS & Storage 3.3.1 and 3.4.1	-12.6	-69%	-13.5	-97%	11.8	621%	30.5	1898%	6.7	803%	23.0	63%
Mains (General Reinforcement) 5.3.2 and 5.4.1	2.9	76%	0.1	4%	-1.1	-31%	-0.5	-17%	2.5	82%	3.9	23%
Governors 5.3.2 and 5.4.1	0.7	73%	1.0	221%	1.4	511%	0.5	183%	1.9	723%	5.4	246%
Connections (Mains) ¹ 4.3.1 and 4.4.1	4.0	5958%	1.3	-8697%	1.1	-1568%	3.4	5812%	2.8	-71820%	12.6	32513%
Connections – (Services) 4.3.1 and 4.4.1	9.6	367%	6.1	253%	9.3	418%	11.9	798%	11.0	1094%	47.8	492%
Other Operational Capex 6.3.1 and 6.4.1	0.3	29%	-0.5	-48%	-0.1	-9%	-0.3	-29%	2.5	238%	1.9	37%
Non-Operational Capex 7.3.1 and 7.4.1	-3.6	-49%	-1.1	-16%	0.5	11%	-4.3	-85%	-3.6	-83%	-12.1	-43%
Reported Net Investment	35.5		21.6		36.1		53.9		34.2		181.4	65.0
Wasteful/Unnecessary Actual Expenditure	5.0		2.7		3.9						11.6	
Adjustments to Forecasts							5.5		3.6		9.1	4.8
LTS & Storage 3.3.3 and 3.4.3 and 3.4.4	0.0		0.0		0.0		0.0		0.0		0.0	0.0
Mains (General Reinforcement) 5.3.3 and 5.4.3 and 5.4.4	0.2		0.1		0.1		0.1		0.2		0.7	0.5
Governors 5.3.3 and 5.4.3 and 5.4.4	0.1		0.1		0.0		0.0		0.0		0.2	0.0
Connections (Mains) 4.3.3 and 4.4.3 and 4.4.4	1.8		0.6		0.5		2.0		1.2		6.0	1.2
Connections – (Services) 4.3.3 and 4.4.3 and 4.4.4	2.2		1.5		3.0		3.5		2.2		12.4	2.0
Other Operational Capex 6.3.3 and 6.4.3 and 6.4.4	0.0		0.0		0.0		0.0		0.0		0.0	0.0
Non-Operational Capex 7.3.3 and 7.4.3 and 7.4.4	0.7		0.5		0.3		0.0		0.0		1.5	1.1
Ofgem Adjusted Net Investment	30.5		18.9		32.3		48.4		30.6		160.6	60.2
Allowed Workload	30.0		18.8		32.3		23.6		23.5		128.3	
Additional Workload	0.5		0.0		0.0		2.1		7.1		9.7	
Deferrable/Unplanned but Predictable	0.0		0.0		0.0		22.6		0.0		22.6	

Table 5

¹ Variance percentage values not included as allowances in some years are negative.

1.2.2 REPEX

Mains and services replacement expenditure is directed at reducing the risk of incident arising from cast, spun and ductile iron mains. Scotland Network follows a programme, aligned to a policy set out by the HSE, aimed at decommissioning all iron mains within 30m of premises by 2032.

The Repex summary figures, which include LTS, are given in table 6. These show the Allowed Net Investment from the current control and the Reported Net Investment as presented by SGN. Net Investment is re-stated after re-allocation of mains and services costs and finally the PB Power initial recommendation for Ofgem's Adjusted Net Investment is detailed

Overspend

- Scotland is forecast to be £43m (26%) in excess of the Net Repex allowance for all activities.
- The overspend is due to higher than forecast costs of replacement mains and services.

Analysis Carried Out

- Review of processes to monitor and control expenditure & projects.
- Assessment of the HSE's requirements.
- Unit cost trends and comparisons.
- Contract arrangements and management.
- Review of processes to manage direct labour productivity.
- Procurement policies and procedures.

Key Issues

- The visibility of costs is poor and a reporting regime should be introduced to enable reliable unit cost comparison within and between GDNs.
- The Supplementary Incentive Mechanism has distorted cost allocation and should be reviewed.
- To address the distortion of mains and services costs, a proportion of services costs have been re-allocated to mains and the Supplementary Incentive Mechanism.

Categorisation of Incurred Expenditure

- An adjustment has been made to services costs to reflect contract and direct labour inefficiencies.

Categorisation of Forecast Expenditure

- Reallocations from services to mains continue to the end of 2006/07.
- There is no reallocation in 2007/08, assuming the review of the Supplementary Incentive Mechanism and allowing a return to appropriate cost allocation.
- There are continuing adjustments to services reflecting on-going contract and direct labour inefficiencies under the current arrangements. The 2007/08 adjustment reflects workload adjustments and cost savings required begin to close the gap with other more efficient GDNs.

Net Repex All figures £m 2005/06 Prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total	2007/08
Allowed Net Investment	31.0		27.4		35.2		35.3		33.3		162.2	
Total GDN Variance	-1.9	-6%	4.5	+16%	7.0	+20%	10.3	+29%	22.8	+68%	42.8	+26%
Mains (as reported) 8.4.1 and 8.5.1	-4.5	-18%	0.2	+1%	0.1	+0%	1.6	+6%	8.5	+34%	5.9	+5%
Services (as reported) 8.4.1 and 8.5.1	2.2	+35%	4.1	+51%	6.6	+72%	8.7	+94%	14.4	+177%	36.0	+88%
LTS 9.3.1	0.4	-76%	0.2	-83%	0.4	+0%	0.0	+0%	-0.2	+0%	0.8	-109%
Reported Net Investment	29.1		31.9		42.3		45.6		56.1		205.0	58.4
Total GDN Variance (after re-allocation by PB Power)	-1.9	-6%	4.5	+16%	7.0	+20%	10.3	+29%	22.8	+68%	42.8	+26%
Mains (after re-allocation) 8.4.1 and 8.5.1	-2.8	-11%	2.6	+13%	3.3	+13%	5.5	+21%	13.6	+54%	22.4	+18%
Services (after re-allocation) 8.4.1 and 8.5.1	0.5	+9%	1.6	+20%	3.3	+36%	4.8	+51%	9.3	+115%	19.5	+48%
LTS 9.3.1	0.4	-76%	0.2	-83%	0.4	+0%	0.0	+0%	-0.2	+0%	0.8	-109%
Restated Net Investment (after re-allocation)	29.1		31.9		42.3		45.6		56.1		205.0	58.4
Wasteful/Unnecessary Actual/Forecast Expenditure	0.2		0.3		0.4						0.9	
Adjustments to Actual/Forecast							0.5		0.7		1.2	7.3
Mains 8.4.3 and 8.5.3 and 8.5.4	0.0		0.0		0.0		0.0		0.0		0.0	4.1
Services 8.4.3 and 8.5.3 and 8.5.4	0.2		0.3		0.4		0.5		0.7		2.1	3.2
LTS 9.3.3 and 9.4.1 and 9.4.2	0.0		0.0		0.0		0.0		0.0		0.0	0.0
Ofgem Adjusted Net Investment	28.9		31.6		41.9		45.0		55.5		202.8	51.1
Mains	22.3		22.3		29.4		31.5		38.8		144.3	
Services & LTS	6.6		9.3		12.5		13.5		16.6		58.5	
Allowed Workload	6.2		7.1		11.4		13.4		14.9		53.0	
Additional Workload	0.4		2.0		0.9		0.0		1.8		5.1	
Deferrable/Unplanned but Predictable	0.0		0.2		0.1		0.1		0.0		0.4	

Table 6

2 INTRODUCTION

2.1 PRICE CONTROL REVIEW TIMETABLE

The current price control period for all gas distribution networks (GDNs) runs from 1 April 2002 to 31 March 2007. Ofgem has decided in consultation with the businesses, to extend this period by one year to 31 March 2008. This process is known as the ‘One Year Control’ and is described below.

The One Year Control will be followed by a further review which will result in a new price control being set for the five years from 1 April 2008 to 31 March 2013. This will be known as the Main Review.

The full process is shown in the following diagram.

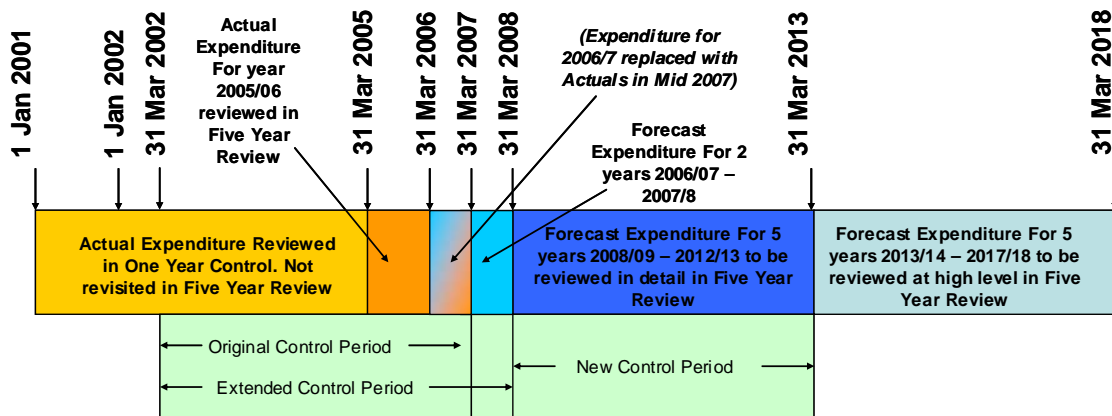


Figure 1

2.2 ONE YEAR CONTROL

Ofgem appointed PB Power working in partnership with Rune Associates Limited to assist them in the preparation of the Capex and Repex elements of the BPQ and to analyse and report on the submissions by the GDNs.

As part of the consultation process a number of meetings were held with the GDNs and a Business Plan Questionnaire was issued on 17 February 2006. The latter were returned to Ofgem on 7 April and PB Power has prepared this report for Ofgem on its findings from these submissions from the GDN.

This report covers the SCOTLAND network owned by Scotia Gas Networks Limited.

2.3 BUSINESS PLAN QUESTIONNAIRE

A combined BPQ was issued on 17 February. This covered the Financial Statements, Opex, Capex and Repex requests. The Capex and Repex areas covered by this report were in the form of 20 Excel worksheets, a section (4) giving guidance to the GDNs as to how to complete the worksheets and a section (6) containing 209 additional narrative questions.

GDNs were asked to respond to Ofgem by 7 April and were asked to upload all the data onto PB Power's file management system, PBShare. All parties in the process were granted appropriate access to relevant folders and documents. Some documents had to be provided in paper copy and these were sent both to PB Power and to Ofgem.

As the analysis of the submissions progressed and where the return was either unclear or insufficient it became necessary to ask the GDNs for additional information. These requests and the additional information which was presented in reply, were logged and stored on PBShare.

At the end of the process the worksheets were updated to include all amendments submitted and should be read in conjunction with this report.

2.4 PURPOSE

The purpose of this report is to present the results of the analyses such that Ofgem may make a determination of the necessity and efficiency of the Capex and Repex expenditure by SGN using the actual results for the three years from April 2002 to March 2005 to permit the RAV roll forward to be fixed up to March 2005. The estimated outturns for 2005/06 will be revisited later in the process when audited accounts are available. These figures along with forecasts for 2006/07 and 2007/08 will be used to fix the allowances for 2007/08, the one year control period.

2.5 ANALYSIS AND REPORTING PROCESS

The BPQ was designed to collect all the data required for analysis. The spreadsheets were designed with the Main Review in mind to ensure that the data collected for the One Year Control was collected in a format which would roll forward into the Main Review. This would also ensure that the GDNs did not have to provide the same information twice.

The GDNs would also be able to see in advance what data was likely to be needed for the Main Review and hence to prepare for this. The narrative questions were mainly focused on the historic period, but again the intention was not to collect the same information twice. The Main Review narrative will focus on the future and require more detailed and substantiated forecasting than was expected for the One Year Control.

PB Power has structured this report to follow the workstrands in Ofgem's tender document as far as is practicable. We have broken the work down into four main workstreams:

- i) Capital expenditure (Capex): for all works on the below 7 bar network including Connections
- ii) Replacement expenditure (Repex): for all replacement work above and below 7 bar including the Policy Mains Replacement Programme.
- iii) Local Transmission System (LTS) and Storage: for all work on the network from 85 bar down to 7 bar, including HP and LP storage.
- iv) Other: covers all I.T. and System Operation work and other operational and non operational Capex.

The report reviews the actual expenditure from April 2002 to March 2005 with a view to determination of the Regulatory Asset Value (RAV) for that period. The forecast years from April 2005 to March 2008 are reviewed to permit the determination of allowances for the One Year Control, April 2007 to March 2008.

2.6 COSTS

All costs in the report are in 2005/06 prices unless otherwise stated.

At the time the analysis was carried out the final RPI value for the year 2005/06 was not known. An estimated value of 192.8 was therefore provided by Ofgem for the analysis. The table below shows the factors which have been used to convert pre 2005/06 costs to 2005/06. These factors have been used throughout the analysis.

		Convert from						
		2000	2001	Q1 2002	2002/03	2003/04	2004/05	2005/06
Convert to	Index	170.3	173.4	173.9	177.5	182.5	188.2	192.8
	2000	1.00	0.98	0.98	0.96	0.93	0.90	0.88
	2001	1.02	1.00	1.00	0.98	0.95	0.92	0.90
	Q1 2002	1.02	1.00	1.00	0.98	0.95	0.92	0.90
	2002/03	1.04	1.02	1.02	1.00	0.97	0.94	0.92
	2003/04	1.07	1.05	1.05	1.03	1.00	0.97	0.95
	2004/05	1.11	1.09	1.08	1.06	1.03	1.00	0.98
	2005/06	1.13	1.11	1.11	1.09	1.06	1.02	1.00

Table 7

After this report had been prepared, a final RPI figure of 193.11 for the year 2005/06 became available. This revision would require some values in this report to be inflated to show the accurate pricing in 2005/06 prices. All **Allowed Net Investments** and pre 2005/06 **Reported Net Investments** require inflating by 0.14%.

2.7 REPORTING DEFINITIONS

A number of terms are used as headings within the tables in the document. The following table sets out the definition of these terms in the context of the report:

Definition of Headings used in tables	
Additional Workload	Expenditure on additional work (above the volume allowed in PCR) that PB Power considers timely, justified and efficiently incurred which could not have reasonably been forecast at the last review
Allowed Workload	Expenditure on allowed work that PB Power considers efficiently incurred (gross)
Allowed Net Investment	The Ofgem allowance (net of contributions)
Deferrable/Unplanned but Predictable	Expenditure on work that PB Power considers was efficiently incurred, but either could have been deferred to the next control period or should have been anticipated and correctly forecast in the current control
Ofgem Adjusted Net Investment	PB Power's recommended adjusted net expenditure for the area of work
Reported Net Investment	The GDN's reported (net) expenditure for the area of work
Wasteful/Unnecessary Expenditure	Expenditure on work that PB Power considers was wasteful or unnecessary

Table 8

2.8 DATA FOR PERIOD JAN 2001 TO MAR2002

Data for this period was provided by NGG only, for the whole UK Distribution business. In most cases the information is aggregated such that the analysis can only be undertaken for UKD as a whole and the breakdown of expenditure categories is not always the same as required for the period after April 2002, thereby affecting and limiting the extent of any analysis.

2.9 ADJUSTMENTS

Where the analysis has led to a conclusion that an adjustment is recommended, it is sometimes the case that this will be a range rather than a specific figure. In these cases the relevant table will show a mid point figure and the range itself will be annotated in the attendant text in either monetary or percentage terms.

3 LTS AND STORAGE CAPEX

3.1 SUMMARY OF FINDINGS

3.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	158.9	14.2	173.1
Wasteful/Unnecessary Expenditure	2.9	0.0	2.9
Ofgem Adjusted Net Investment	156.0	14.2	170.2

Table 9

Analysis Carried Out

The LTS data provided for this period by NGG is in aggregate form only except for named large pipeline projects. These named projects were:

- Reviewed to determine efficiency of spend
- Reviewed to determine effectiveness of planning and procurement activities
- Examined for financial controls across their phased expenditure period

Key Issues

- Project expenditure spans up to four years
- A single project may span three RAV assessment periods
- Inefficiencies are estimated and applied to a nominal central year

Categorisation of Incurred Expenditure

- Two projects have been identified with some wasteful/unnecessary expenditure totalling £2.9m

3.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

Overspend

- A late scope change to a major project caused an overspend of £22.6m

Analysis Carried Out

- All named projects were reviewed in respect of outline data
- Selected projects were reviewed in depth for justification and efficiency

Key Issues

- Projects are clearly identified and well planned now
- A late scope change in 2002 to a major project caused an overspend in 2005/06

Categorisation of Incurred Expenditure

- No wasteful or unnecessary expenditure has been identified and the total expenditure is recommended to be allowed

Categorisation of Forecast Expenditure

- No wasteful or unnecessary expenditure has been identified and the total expenditure is recommended to be allowed

Net Capex All figures £m 2005/06 prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total	2007/08
Allowed Net Investment	18.4	13.9	1.9	1.6	0.8	36.6	
Total GDN Variance	-12.6 -69%	-13.5 -97%	11.8 621%	30.5 1898%	6.7 803%	23.0 63%	
Reported Net Investment	5.8	0.4	13.7	32.1	7.5	59.6	24.0
Wasteful/Unnecessary Actual Expenditure	0.0	0.0	0.0			0.0	
Adjustments to Forecasts				0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	5.8	0.4	13.7	32.1	7.5	59.6	24.0
Allowed Workload	5.8	0.4	13.7	9.5	7.5	36.9	
Additional Workload	0.0	0.0	0.0	0.0	0.0	0.0	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	22.6	0.0	22.6	

Table 10

3.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	158.9	14.2	173.1
Wasteful/Unnecessary Expenditure	2.9	0.0	2.9
Ofgem Adjusted Net Investment	156.0	14.2	170.2

Table 11

Data provided by NGG for LTS expenditure for the period January 2001 to March 2002 was provided as aggregate UKD data only. The total expenditure was £173.1m . This was mainly on 11 named pipeline projects.

Not only does the expenditure for any given project extend over a period of up to four or five years, but the expenditure also crosses the threshold of the two price control periods at 31 March 2002 and there was some expenditure pre January 2001. This requires special consideration in terms of the treatment of adjustments.

For these purposes each project has been allocated a 'central' year: the year of peak expenditure. Any adjustment will be applied to that year only.

Detail relating to the justification for any adjustment is to be found in the GDN report for the Network in whose area the project is located. The summary of these adjustments is:

- a) Projects with a central year of 2002/03 or beyond: £10.5m (2005/06 Prices)
- b) Projects with a central year of 2001 £ 2.9m (2005/06 Prices)

Adjustments for those in (a) are explained in the LTS sections of the relevant GDN report.

Adjustments for those in (b) are given below:

Breakdown of the adjustments;

Horndean to Newalls Lane: due to inefficient planning processes and contract management it was considered that this project overspent unnecessarily by £0.7m.

Newbury Reinforcement: due to inefficient planning processes and contract management this project incurred an inefficient and unnecessary overspend of £2.2m.

3.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

3.3.1 HIGH LEVEL VARIANCES ANALYSIS

LTS and Storage Capex All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross	Actual	5.8	0.4	13.7	19.9
	Allowance	18.4	13.9	1.9	34.2
	Variance	-12.6	-13.5	11.8	-14.3
Contributions	Actual	0.0	0.0	0.0	0.0
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.0	0.0
Net	Actual	5.8	0.4	13.7	19.9
	Allowance	18.4	13.9	1.9	34.2
	Variance	-12.6	-13.5	11.8	-14.3

Table 12

3.3.2 REASONS FOR VARIANCES

A major pipeline project was due to be completed in 2002/03 and 2003/04. This was deferred due to a change of scope (see 3.4.2) and this caused an underspend against the allowance for this three year period.

3.3.3 EFFICIENCY ANALYSIS

LTS and Storage Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	5.8	0.4	13.7	19.9
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	5.8	0.4	13.7	19.9
Allowed Workload	5.8	0.4	13.7	19.9
Additional Workload	0.0	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 13

3.3.3.1 **Project Review**

To assess the efficiency of LTS expenditure, SGN's processes were reviewed to determine whether they had appropriate procedures for planning, procurement, contract management and financial controls.

For Scotland Network one project was selected for detailed review;

Project Selection

The largest and most significant LTS project to be undertaken in the Scotland network in the current control period was the Bathgate to Newarthill and Carfin pipeline. This project was selected for specific review because the scope increased materially from that planned in 2001.

Project Description

The construction of a new NTS offtake at Bathgate and 19km of 1200mm diameter high pressure (85 barg) steel pipeline from Bathgate to Newarthill, a PR1 at Newarthill and 2.2 km of 450mm diameter (19bar) steel pipeline to Carfin to supply the existing LTS. This reinforces supplies to Central Scotland and provides considerable diurnal storage in the LTS.

Summary of Findings

The network analysis data provided demonstrated that this reinforcement and storage was required for 2005/06 to avoid a failure to supply statutory loads in Central Scotland. However, it is not clear why this was not identified earlier in the planning process.

The project justification paper reviewed alternative solutions and we are content that all reasonable alternatives were included. The solution chosen was the best available.

The project was completed within a reasonable tolerance of the approved sum.

Conclusion

Scotland has historically benefited from storage provided from the NTS. However, because of increased demand and reduced availability of NTS storage, investment profiles have changed on the Scotland LTS.

The single project which accounts for the Capex overspend is the Bathgate-Newarthill-Carfin project. Subsequent increases in the diurnal storage requirement of the network resulted in change of scope introduced in 2002/03.

The project has now been completed at a total cost of £42.4m, a variance of £21.3m from the final proposals. The variance is accounted for by an increase in the pipeline length and diameter (£4m), an increase in the pipe wall thickness (£5m), PRS costs (£1m) and the volumetric offtake (£5m). The construction main works contract overspent by £5m which (see 2.3.7) was deemed to have been necessary and efficiently spent.

We have examined the reasons around the change of scope and deem this to be necessary and efficient expenditure. However, the change of scope took the total expenditure over the allowance, see section 3.4 below, and it is our view that the planning process should have identified the need for this work early enough for it to have been included in the 2000 plan.

The full report can be seen in Appendix 7.

3.3.3.2 Network Planning and Design

Scotia Gas Networks consists of the Scottish and Southern GDNs. The Southern GDN contains the SE and SO LDZs. Data was supplied separately for each of the three LDZ networks contained in the Scotia Gas Networks. The level of detail varied in that data for the Southern networks was more comprehensive than the data for the Scotland network.

We have reached the conclusion that the planning work for development of the SGN's Networks, and in particular that of the local transmission and storage systems, has been carried out in a competent manner. Because of the greater detail provided for the Southern network, there is a greater degree of confidence generated regarding the capability of that GDN.

i) Information relating to forecast system flows for the 1 in 20 condition and actual system peak days for each year were provided. These gave sufficient information to allow identification of entry and exit flows and pressures at key points. The actual recorded demands for the south are considerably lower than predicted 1 in 20 peak day demands resulting in a large variation between forecast and actual pressures which is as would be expected. These are consistent with the reduction in pipeline pressure losses which will occur at flow rates significantly lower than those simulated in a peak day model.

ii) Information was provided identifying a small number of problem areas where the solution is dependent on third party involvement.

A brief overview of the process used was provided indicating that the Scotland is following an agreed and documented procedure.

iii) A brief description of the process used in developing GBNA and Falcon network analysis models and how demands are derived for both was provided. This indicates an established liaison route between analysis sections dealing with different pressure tiers.

iv) A brief overview of the procedure involved in allowing for load growth from new large consumers was given and the reference made to the SGN connection charges document setting out the contributions which would be required.

v) An adequate explanation of the diurnal storage determination process was provided to allow the GDN's understanding of the process to be assessed. We found the process to be satisfactory.

vi) A description of the programmes and processes involved including detail of the validation procedures used within the GDNs was provided including a copy of the network validation document report for the 2 LDZs making up the Southern GDN. The information provided gave a satisfactory explanation of the process and the validation reports indicate an appropriate degree of confidence in the network analysis process used. We found that the validation report for SE LDZ demonstrated an understanding of the limitations of that model. Similarly, that for the SO LDZ, although somewhat old, also gave confidence. There was no information provided for the Scotland network and, as planning work is carried out by a different planning team from Southern, no firm conclusion can be drawn about the suitability of the model or the capability of the planners.

3.4 FORECAST EXPENDITURE

LTS and Storage Capex All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross	Actual	5.8	0.4	13.7	32.1	7.5	59.6
	Allowance	18.4	13.9	1.9	1.6	0.8	36.6
	Variance	-12.6	-13.5	11.8	30.5	6.7	23.0
Contributions	Actual	0.0	0.0	0.0	0.0	0.0	0.0
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.0	0.0	0.0	0.0
Net	Actual	5.8	0.4	13.7	32.1	7.5	59.6
	Allowance	18.4	13.9	1.9	1.6	0.8	36.6
	Variance	-12.6	-13.5	11.8	30.5	6.7	23.0

Table 14

3.4.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

All named projects were reviewed in outline. One named project was reviewed in detail.

3.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

The Bathgate to Carfin pipeline was due to be built in 2002/03 at an outturn cost of £19m. In 2002/03 Scotland decided to increase the diameter length and specification of this pipeline to give more diurnal storage. The report on the project (see Appendix 7) indicates that the decision is supported but that this single change caused an overspend against allowance of £22.6m, by far the majority of the overspend in this period and it is our view that this should have been identified earlier in the planning process and included in the 2000 plan. Indeed, Scotland's current BPQ submission identifies named projects out to 2012/13.

3.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

LTS and Storage Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
GDN Forecast Net Investment	5.8	0.4	13.7	32.1	7.5	59.6	24.0
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ofgem Adjusted Forecast Net Investment	5.8	0.4	13.7	32.1	7.5	59.6	24.0
Allowed Workload	5.8	0.4	13.7	9.5	7.5	36.9	
Additional Workload	0.0	0.0	0.0	0.0	0.0	0.0	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	22.6	0.0	22.6	

Table 15

Transmission pipelines will normally become visible in the planning process between five and ten years ahead of their required commissioning date. In the first instance the long term planning process will identify a supply/demand mismatch usually at zonal level. This will be entered into the plan as a potential reinforcement need in a particular year. A simplistic

solution (the most obvious) may be costed to permit a figure to be entered into the financial plans.

As the 'project' comes closer in time, other actions and events may affect the design data for this project and in particular the timing. Demands are reassessed annually and networks are validated against real data on a cyclical programme following each winter's experiences. New economic industrial loads may significantly move the size and timing of any proposal. Adjacent LTS projects can influence proposals and in particular NTS projects will have a major impact. It is critical that a link is maintained between the NTS planning processes and the LTS otherwise suboptimal solutions will be implemented. This is particularly critical as the lead times for both NTS and LTS pipelines are 3 to 4 years. Last minute changes in design and timing will lead to unnecessary and/or inefficient expenditure.

Diurnal storage requirements also directly impact on the pipeline requirements and timings and these are a dynamic and complex set of calculations changing as increasing connected load reduces available linepack over time and as the availability of Low Pressure Gasholders diminishes with age.

As the decision time for a project approaches, alternative solutions are worked up in more detail and refined. These are costed accurately to permit selection of the optimum solution.

Transmission Pressure Reduction Installations (PRIs) will either be part of a pipeline project in which case their evolution follows the same process, or they may be rebuilt to give additional capacity while the inlet and outlet pipelines are still satisfactory. It is normal that any PRI rebuilds will deliver significant extra capacity such that the expenditure will be treated as capital. Rebuilds due to obsolete equipment would also be classed as Capex for the same reason. Piecemeal replacement of (some) equipment which does not give material extra capacity to the whole installation will be treated as Repex.

The decision to change the scope of the Bathgate to Carfin pipeline and to defer its construction caused an underspend against allowance in the first three years but an overspend against allowance in this period.

3.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

The LTS programme is well presented and detailed for 2007/08 is £7m of pipeline work and £16m of PRI and Offtake work. This is deemed to be necessary and allowable.

3.5 FORECAST TRENDS (2002 TO 2013)

3.5.1 HIGH LEVEL TREND

Scotland's submission indicates a high workload from 2006/07 to 2012/13. There are 18 named pipeline projects at a cost of £32m and four named NTS offtake projects, eleven named LTS PRI projects and some smaller unnamed works totally £24m.

The programme is well detailed and at least as far as 2007/08 none of the pipeline work is driven by providing storage. Projects after 2008/09 can be revisited in the main review when the new NTS offtake rules are known and the impact on the economics of buying NTS storage versus building LTS linepack will be clearer.

3.5.2 COMMENTS ON TREND

It is normal not to see trends in an LTS programme.

4 CONNECTIONS CAPEX

4.1 SUMMARY OF FINDINGS

This section considers total Connections Capex.

4.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	85.9	29.1	114.9
Wasteful/Unnecessary Expenditure	15.0	5.1	20.1
Ofgem Adjusted Net Investment	70.9	24.0	94.8

Table 16

The Net Capex summary figures are given in Table 15, together with Reported Net Investment as provided by NGG and PB Power's recommendation for Ofgem's Adjusted Net Investment.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account:

- Assessment of Net Capex drivers.
- Unit cost trends and comparisons.
- Review of workload trends.

Key Issues

- Information for the period January 2001 to March 2002 is reported by NGG on a total UK basis only. Therefore we are unable to provide an assessment of investment performance specifically relating to Scotland.
- Recovery of costs via contributions is inefficient and appropriate adjustments have been recommended.

Categorisation of Incurred Expenditure

- £20.1m of connections expenditure is considered wasteful.

4.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

The Net Capex summary figures are given in Table 16 below. These show the initial Allowed Net Investment from the last control, Scotland's Reported Net Investment and finally PB Power's initial recommendation for Ofgem's Adjusted Net Investment.

Overspend

- Scotland is forecast to be £60.4m (618%) in excess of the Net Capex allowance.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account:

- Review of processes to monitor and control expenditure & projects.
- Assessment of Net Capex drivers.
- Unit cost trends and comparisons.
- Management of contract arrangements.
- Review of processes to manage direct labour productivity.
- Procurement policies and procedures.

Key Issues

- Data quality, particularly for connections activities, has inhibited analysis and comparison of cost performance.
- SGN does not have management information systems that provide detailed analysis of Net Capex performance to ensure effective monitoring and control.
- Recovery of costs via contributions is inefficient and appropriate adjustments have been recommended.

Categorisation of Incurred Expenditure

- £9.5m of connections expenditure has been assessed as inefficient.

Categorisation of Forecast Expenditure

- £8.8m of connections expenditure has been assessed as inefficient.

Net Capex All figures £m 2005/06 prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total	2007/08
Allowed Net Investment	2.7	2.4	2.1	1.6	1.0	9.8	
Total GDN Variance	13.6 508%	7.3 307%	10.3 482%	15.3 988%	13.8 1377%	60.4 618%	
Reported Net Investment	16.2	9.7	12.5	16.9	14.8	70.1	14.5
Wasteful/Unnecessary Actual Expenditure	4.0	2.1	3.4			9.5	
Adjustments to Forecasts				5.4	3.4	8.8	3.2
Ofgem Adjusted Net Investment	12.2	7.6	9.1	11.5	11.4	51.8	11.3
Allowed Workload	12.1	7.6	9.1	9.3	7.8	46.0	
Additional Workload	0.1	0.0	0.0	2.1	3.6	5.8	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 17

4.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	85.9	29.1	114.9
Wasteful/Unnecessary Expenditure	15.0	5.1	20.1
Ofgem Adjusted Net Investment	70.9	24.0	94.8

Table 18

4.2.1 GROSS CAPEX

Information for the period January 2001 to March 2002 is reported by NGG on a total UK basis only. Therefore we are unable to provide an assessment of investment performance specifically relating to Scotland.

We have reviewed the unit costs and workload for the period based on comparison with trends for the period 2002/03 to 2004/05.

The following charts indicate total UK unit cost movements over the period 2001 to 2004/05.

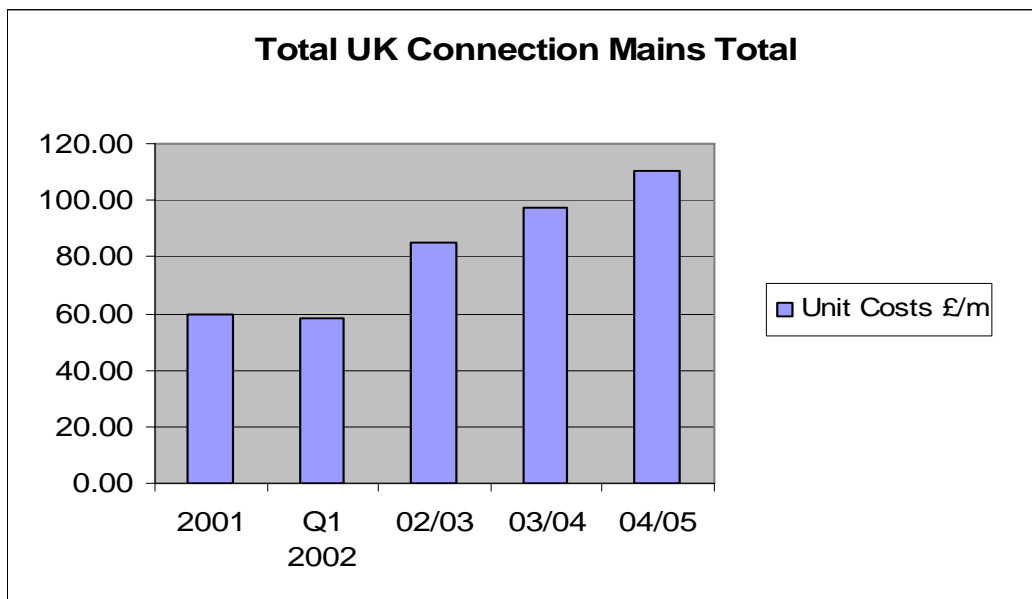


Figure 2

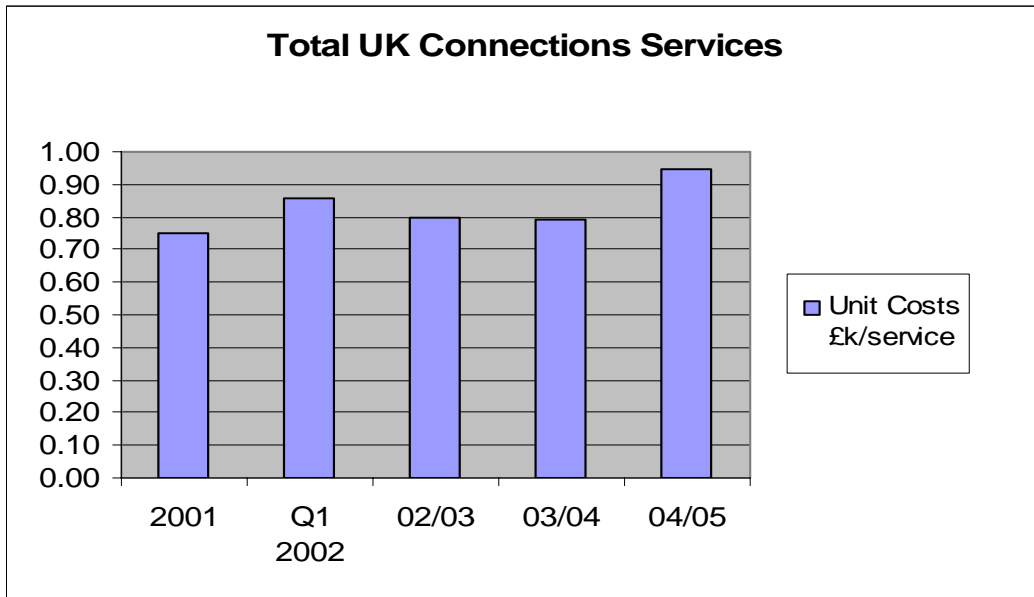


Figure 3

The following charts indicate total UK workload movements over the period 2001 to 2004/05.

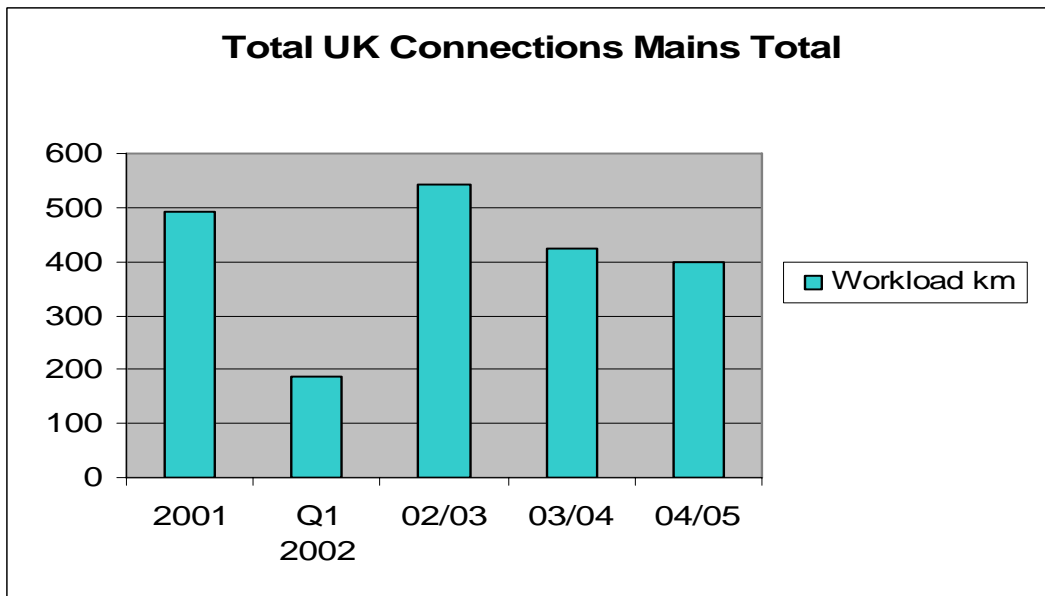


Figure 4

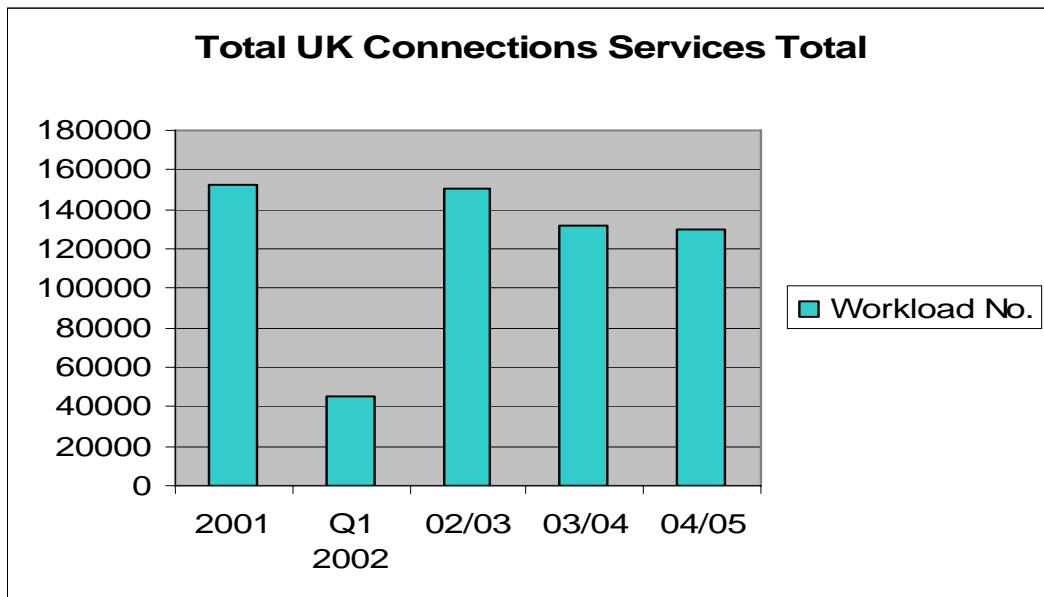


Figure 5

Connections workload and unit cost performance levels for the period 2001 to Q1 2002 are consistent with the trend to 2004/05 and no issues have been identified.

We recommend that the reported Net Capex and work volumes for connections activities are accepted as we have not identified any issues in these respects.

4.2.2 NET CAPEX

Separation of connections activities was at the very early stages of implementation during the period. We are of the opinion that it would be unreasonable to assume that the Net Capex inefficiencies identified and considered in Section 4.3.3 were at the same level of effect as in the later years covered by the connections Net Capex performance information provided by NGG and detailed in Appendix 3 – Fulcrum Connections. Therefore, we recommend that adjustments should be applied to reported Net Capex at the level of -10% for time lag and -7.5% for under recovery of costs. The combined adjustment of -17.5% reduces the reported Net Capex from £114.9m to £94.8m.

4.2.3 RECOMMENDATIONS

i) We recommend that the reported Gross Capex and work volumes for connections activities are accepted as we have not identified any issues in these respects.

ii) We recommend that adjustments should be applied to reported Net Capex at the level of -10% for time lag and -7.5% for under recovery of costs. The combined adjustment of -17.5% reduces the reported Net Capex from £114.9m to £94.8m.

4.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

This section of the report provides a review of connections expenditure performance compared to allowances for the period 2002/03 to 2004/05. Workload information is included to support understanding of expenditure variances.

Expenditure and allowances are inclusive of capitalised overheads.

4.3.1 HIGH LEVEL VARIANCES ANALYSIS

4.3.1.1 Connections - Mains

The gross expenditure and workload variances for the 3 year period are 104% and -14% respectively. The actual work volume undertaken is driven by customer requirements and, therefore, we consider it to be necessary.

Contributions for the 3 year period are in excess of the allowance and the variance is 14%. The overall Net Capex allowance is negative, i.e. contributions exceed gross expenditure, which cannot be achieved bearing in mind the various factors that drive Net Capex. These factors are described in detail in the Appendix 3 – Fulcrum Connections and are taken into account in the efficiency analysis (Section 4.3.3).

For the purposes of high level comparison connections mains expenditure includes minor levels of expenditure allocated by Scotland to connections governors, for which there is no separate allowance.

Connections (Mains) All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross (£m)	Actual	6.1	4.3	4.0	14.5
	Allowance	2.8	2.3	2.0	7.1
	Variance	3.3	2.0	2.1	7.4
Contributions (£m)	Actual	2.0	3.1	3.0	8.1
	Allowance	2.7	2.3	2.1	7.1
	Variance	-0.7	0.8	1.0	1.0
Net (£m)	Actual	4.1	1.2	1.0	6.3
	Allowance	0.1	0.0	-0.1	0.0
	Variance	4.0	1.3	1.1	6.4
Workload (km)	Actual	119	94	50	263
	Allowance	115	102	88	305
	Variance	5	-9	-38	-42

Table 19

4.3.1.2 Connections – Services

The gross expenditure and workload variances for the 3 year period are 114% and -13% respectively. Clearly, the services workload allowances are not an issue in terms of Scotland's expenditure variance. The actual work volume undertaken is driven by customer requirements and, therefore, we consider it to be necessary.

Contributions for the 3 year period are 23% above the allowance which reflects the workload variance.

The Net Capex variance is substantial at £24.9m. Services Net Capex is driven by various factors which are described in the Appendix 3 - Fulcrum Connections (FC) and are considered in detail under Section 4.3.3.

Connections (Services)		2002/03	2003/04	2004/05	3 year Total
All figures £m 2005/06 Prices					
Gross (£m)	Actual	19.5	15.7	19.4	54.7
	Allowance	9.3	8.6	7.6	25.5
	Variance	10.2	7.2	11.8	29.2
Contributions (£m)	Actual	7.4	7.2	8.0	22.5
	Allowance	6.7	6.1	5.4	18.2
	Variance	0.6	1.1	2.6	4.3
Net (£m)	Actual	12.2	8.5	11.5	32.1
	Allowance	2.6	2.4	2.2	7.2
	Variance	9.6	6.1	9.3	24.9
Workload (No.)	Actual	22,184	20,854	18,377	61,415
	Allowance	25,963	24,066	20,840	70,869
	Variance	-3,779	-3,212	-2,463	-9,454

Table 20**4.3.2 REASONS FOR VARIANCES****4.3.2.1 SGN explanations**

SGN has provided explanations for variances associated with connections activities which are summarised as follows:

- i) Competition has not developed in the Statutory Connections market as expected.
- ii) Continuation of the Enforcement Order and compliance with Standards of Service resulted in high overheads within FC which were not included in the allowances.
- iii) FC's high cost of quotations and reducing acceptance rates, included in the Management Fee.
- iv) Inadequate provision for connections allowances (DLCA) resulting in over estimation of customer contributions.
- v) FC EPC rates rose in excess of RPI and in excess of the provision in the allowances.

4.3.2.2 Principal Factors affecting Variances**Connections Gross Capex**

In our view, the principal factors affecting the variance between PCR allowances and reported gross expenditure are:

- i) Ongoing costs of separation

The creation of FC as a separate business was an outcome of the issue of the Enforcement Order. It seems reasonable to presume that both Transco and Ofgem were aware, and accepted, that overheads on connections activities would increase as a consequence. It is not clear whether this increase in overheads was anticipated when setting the allowances.

ii) EPC prices

In 2000 the Engineering Period Contracts (EPCs) were separated into two distinct contract types (generic and connections) to remove any element of cross-subsidy and to support the development of a competitive connections market. This resulted in a higher contractor cost for the connections activity due to contractors requiring a premium for the geographic dispersion and unpredictable nature of this work, preferring instead the stability and predictability of larger long-term projects such as mains replacement.

Competitively tendered contractor rates have been increasing at a rate faster than RPI and, therefore, in excess of the rate incorporated into expenditure forecast

iii) Workload forecasts

Transco's BPQ assumptions predicted that the connections workload would fall as a consequence of competition eroding market share and, therefore, overall cost would fall. The BPQ submission proved to be unrealistic.

Connections Net Capex

The net cost of connections activities incorporates the effects of the following:

- i) Domestic Load Connection Allowance (DLCA)
- ii) Non-domestic allowances
- iii) Employer Ordered Works (EOW)
- iv) Time lag
- v) Overheads associated with unaccepted quotations
- vi) Under recovery of costs

The allowances significantly undervalued the effects of these factors. A broad indication of the degree is provided by calculation of the average Net Capex per service connection. The services allowances Net Capex for the 3 year review period equates to an average of the order of £103/connection whereas as the actual average Net Capex is £523/connection.

The principal component of Net Capex is the DLCA which applies to approximately 90% of new services to existing housing at an average cost of £590/connection, based on cost estimates provided by SGN. If it is assumed that approximately 70% of total services are to existing housing then this is indicative of £22.8m actual cost attributable to the DLCA for the period 2002/03 to 2004/05.

On request, SGN has since provided the following detailed cost assessment of the DLCA which indicates costs in line with the original estimate.

Table 21

The DLCA cost estimate at £22.8m over the period to 2004/05 represents 71% of services actual Net Capex.

It should be noted that information requested from and provided by NGG following the review meeting indicates that the total cost for all allowances, including the DLCA, is of the order of 60% of connections total Net Capex.

4.3.3 EFFICIENCY ANALYSIS

Connections Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	16.2	9.7	12.5	38.5
Wasteful/Unnecessary Expenditure	4.0	2.1	3.4	9.5
Connections Mains	1.8	0.6	0.5	2.8
Connections Services	2.2	1.5	3.0	6.7
Ofgem Adjusted Net Investment	12.2	7.6	9.1	28.9
Allowed Workload	12.1	7.6	9.1	28.8
Additional Workload	0.1	0.0	0.0	0.1
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 22

4.3.3.1 Introduction

During the period 2002/03 to September 2005, Fulcrum Connections undertook all connections activities on behalf of Scotland. The Service Provider Contract (SPC) formed the basis for the contractual relationship between Scotland and FC. NGG coordinated the interface between FC and the GDNs. Appendix 3 provides information regarding Fulcrum Connections and connections business processes relevant to review of connections expenditure and assessment of efficiency. Information provided by NGG relating to the retained networks is included in the appendix and, as appropriate, forms the basis for consideration and analysis of connections expenditure for Scotland, and all other GDNs also.

NGG's management information systems employed to monitor and control connections expenditure were not adequate to provide accurate expenditure and work volume information to support detailed analysis in alignment with the allowances. Historic information provided by NGG has been synthesised by SGN into the activities format required by the BPQ. Discussions with SGN indicated that this has been a difficult process and, as a result, the separate activity category information cannot be relied upon entirely as a basis for accurate variance and GDN comparison analysis. Unit cost movements are inconsistent in some cases and without apparent workload balance justification.

No information has been returned regarding governors and we presume that this expenditure is allocated elsewhere within connections Capex and cannot be identified separately.

The analysis process described below has been applied to the individual activity categories within Connections. However, this report focuses on the analyses at the level of total mains and total services which we consider to be sufficiently accurate for detailed examination.

4.3.3.2 Connections Gross Capex

We have carried out various analyses to assess the efficiency of connections Gross Capex, including:

- Review of the process for monitoring expenditure and cost control, both by NGG and FC.
- Assessment of the process for determination of the Management Fee.
- Trends in unit costs.
- Unit cost comparisons
- Review of the processes to manage direct labour productivity.
- Procurement processes – EPCs and materials.

Expenditure Monitoring

Examination and review of the management information systems employed within NGG and FC did not provide evidence of information to monitor activity expenditure efficiency, e.g. activity unit costs, at any organisational level. We conclude that the information systems employed by NGG and FC do not adequately monitor and manage the efficiency of connections expenditure and performance improvement.

It is difficult to assess the degree of efficiency benefit from appropriate MI systems but, we are of the opinion that a 3% improvement is reasonable based on the information submitted. This degree of efficiency improvement is, in our opinion, achievable with appropriate MI systems to monitor performance. Therefore, a -3% adjustment been applied to costs and this adjustment has been incorporated in the analyses.

Management Fee

We have assessed NGG's management of the process to control and determine the Management Fee charges levied by FC. This assessment covered the management fee build-up, inclusion of a profit element and the application of the performance incentive mechanism to take into account performance against a range of KPIs substantially based on Standards of Service. No evidence was found to indicate that the charges were not determined in accordance with the SPC and we conclude that NGG has effectively managed the contractual terms on behalf of the GDNs.

Unit Cost Trends

The analysis process incorporates examination of unit cost trends to identify exceptional misaligned movements. We regard such exceptional unit costs as an indication of inefficiency, unless there is relevant workload balance justification (based on examination of workload pipe diameter split information provided by SGN) or narrative response information providing an explanation. Where there is no evidence to justify the unit cost level we have applied an appropriate adjustment to the contract labour cost element in order to determine the efficient unit cost.

The following graph provides an example of the effect of this adjustment on actual unit costs and an indication of the resulting efficient unit cost in alignment with the overall trend.

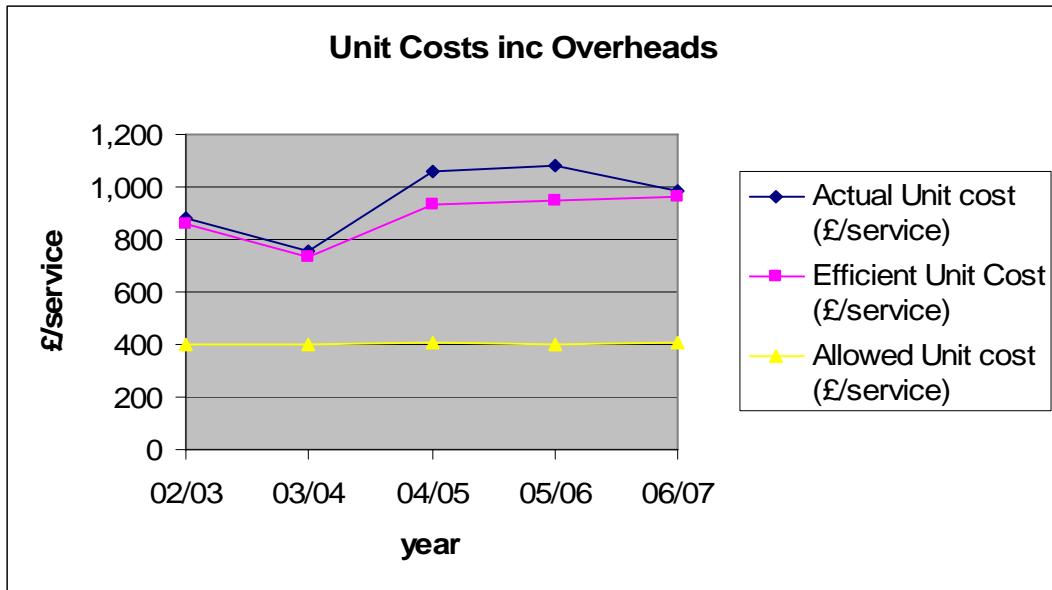


Figure 6

Unit Cost Comparisons

The charts below show the actual unit costs, inclusive of overheads, for all GDNs at 2005/06 prices adjusted by indexation to take into account regional (geographic) price variations. Indexation in this way facilitates meaningful comparison of unit cost performance. The indices used are based on the RICS Building Cost Information Service published indices, as used by Ofwat for this purpose.

The validity of these comparisons is dependent on the consistency of the expenditure and workload information reported by all GDNs. We are of the opinion that the information reported by the GDNs is not sufficiently reliable for use as a basis for comparison analysis and efficiency assessment. Therefore we regard the results as indicative only and no assessment of relative efficiency has been undertaken.

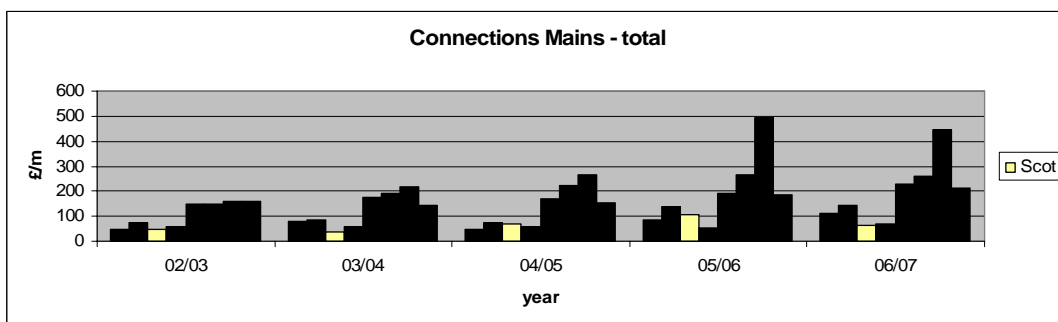


Figure 7

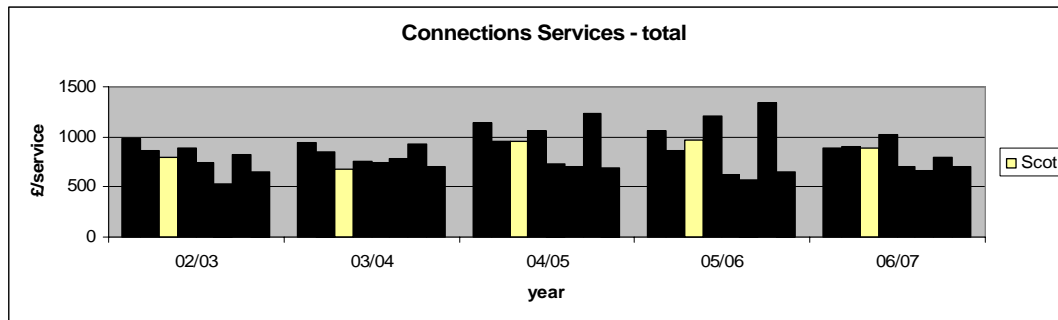


Figure 8

Direct Labour Productivity

Review of the processes to manage direct labour productivity did not reveal evidence of routine, detailed information, including unproductive time analysis, to monitor, manage and set performance improvement targets for direct labour productivity on an individual basis. We consider that direct labour cost performance is, to a degree, inefficient without the focus provided by appropriate management information and periodic review. Therefore, we have applied a -7.5% adjustment to direct labour costs in the analysis process, which in our opinion is achievable with such an approach.

Procurement – EPCs

In 2000 the Engineering Period Contracts (EPCs) were separated into two distinct contract types (generic and connections) to remove any element of cross-subsidy and to support the development of a competitive connections market.

Separation of connections activities had a direct impact on FC's competitively tendered EPC arrangements and their ability to obtain the best market rates comparable to the rates for this work type prior to separation. Connections work is geographically spread, low volume and is driven by Standards of Service performance. These factors combine to inhibit operational flexibility in terms of forward planning and work scheduling, and hence reduce efficiency. It is to be expected that a premium will have to be paid in order to attract contractors to this work, particularly in periods when contractors are in demand to meet generally high workloads in other gas and utilities activities which would be more profitable.

The cost effectiveness of EPC operations is highly sensitive to work mix, work volume and the demand for competent labour in the utilities contracting market. Any significant and ongoing change in these respects affects profitability and has generated requests for a review of rates to take account of the circumstances and to ensure that continuity of EPC services is not disrupted. The decision by SGN to in-source connections activities will address these issues to some degree and should alleviate the upward pressure on costs in due course.

In conclusion, we have found no evidence to indicate that the EPC procurement and management processes are inefficient.

Procurement - Materials

Connections materials required by FC are obtained via NGG group contracts and, therefore, FC derives benefit from NGG group leverage which should ensure that the best prices are available. We have found no evidence to indicate that materials procurement and usage management processes are inefficient.

Appendix 2 provides further information regarding FC procurement processes.

Summary of Adjustments to Connections Gross Capex:

The adjustments applied to connections Gross Capex are summarised as follows:

- i) Improved contract labour management: -3% applied to contract labour cost for all years except where a higher adjustment for unit cost alignment is made.
- ii) Contract labour cost adjustment to align unit cost with trend:
 - Mains: no adjustments applied.
 - Services : 04/05 -15%
- iii) Improved direct labour management: -7.5% applied to direct labour costs for all years.

4.3.3.3 Connections Net Capex

We have carried out an analysis to identify the various components of connections Net Capex and assess the proportional effect of each component in terms of total Net Capex. The analysis is based on information requested from, and provided by, NGG regarding its networks for the period 2002/03 to 2005/06.

Having reviewed the information provided by NGG and taking account of representations made by GDNs, we have adjusted the proportions for time lag, unaccepted quotations and under recovery. Also, we have taken account of evidence presented which suggests that the balance between mains and services should be amended to reflect the impact of allowances more accurately. In adjusting the values we have ensured that, taking account of relative Net Capex for mains and services, the resulting effect is consistent with the original information provided by NGG. (See Section A.3.6.8)

DLCA (Domestic Load Connection Allowance) and Other Allowances

Clearly, domestic and non-domestic allowances comprise the major element of Net Capex. In the process of discussing this matter with the GDNs and examining the information provided, we did not find any evidence of inefficiency in the calculation and application of these allowances.

Our analysis attributes 37.3% of mains Net Capex and 74.0% of services Net Capex to the cost of allowances.

Employer Ordered Works

EOW are essential works (e.g. mains upsizing to ensure network capacity to supply additional connections) additional to the customer quotation scope of work and are subject to authorisation by GDNs before work is undertaken and payment is made. We did not find any evidence of inefficiency in specification of EOW and the management processes to control the associated expenditure.

Our analysis attributes 12.7% of mains Net Capex and 3.0% of services Net Capex to the cost of EOW.

Unaccepted Quotations

The cost of providing quotations for connections work that are not accepted has been emphasised in BPQ submissions and in responses from GDNs. Our analysis takes into account the views expressed and attributes 7% of mains and services Net Capex to unaccepted quotations.

Time Lag

A significant proportion of Net Capex results from work in progress, i.e. work that was quoted before a price increase but executed after the price change. Connection charges are based on current costs at the time of quotation and, therefore, when costs are increasing under recovery occurs and this under recovery passes into Net Capex. There is no evidence of information to monitor the costs of time lag and initiate revision of the quotation process to reduce. Therefore, we conclude that action should have been taken to mitigate the cost consequences of time lag and the resultant expenditure is inefficient.

A -15% adjustment to mains and services Net Capex has been applied in the analysis process.

Under Recovery of Costs

The analysis process identified a significant component of Net Capex associated with inherent under recovery of costs and there is no evidence of routine management information to monitor and control these costs. We conclude that action should have been taken to mitigate the consequences of under recovery of costs in the customer quotation process and the resultant expenditure is therefore inefficient.

A -28.0% adjustment to mains Net Capex and a -1.0% adjustment to services Net Capex has been applied in the analysis process.

Summary of Adjustments to Connections Net Capex

The adjustments applied to mains Net Capex are summarised as follows:

- | | | |
|------|--------------------------|---|
| i) | Time lag: | -15.0% adjustment to Net Capex for all years |
| ii) | Under recovery of costs: | -28.0% adjustment to Net Capex for all years. |
| iii) | Total adjustment: | -43.0% to Net Capex for all years. |

The adjustments applied to services Net Capex are summarised as follows:

- | | | |
|------|--------------------------|--|
| i) | Time lag: | -15.0% adjustment to Net Capex for all years |
| ii) | Under recovery of costs: | -1.0% adjustment to Net Capex for all years. |
| iii) | Total adjustment: | -16.0% to Net Capex for all years. |

4.3.3.4 Analysis Process

The expenditure analysis process has been designed to take into account appropriate indexation for inflation, applied to both expenditure and allowances, and identified adjustments due to inefficiency.

All analysis has been undertaken at 2005/06 Prices and GDN actuals, forecasts and allowances are re-stated on this basis.

A volume analysis has been carried out to establish the allowed and additional work volumes. Our analysis has not found any evidence to determine that any of the work volumes fall into the category of deferrable or unplanned but predictable work. This category of work volume is therefore nil.

Our expenditure analysis has been carried out in three stages. At each stage of the analysis the three figures, Gross Capex, Contributions and Net Capex are restated.

The first stage is to restate the reported Gross Capex, Contributions and Net Capex.

The second stage is to adjust the Contributions for the percentage of Net Capex that has been estimated as under-recovered. Thus the Contributions are increased by this amount and the Net Capex reduced by the same amount. The Gross Capex remains unchanged.

The third stage is to adjust all three figures (Gross, Contribution & Net) for the percentage that the Gross expenditure has been estimated as being inefficient. This second stage gives the final Net Capex figure which has been used to adjust the Reported Net Investment figure.

Finally having established an estimate for the efficient Gross Capex, this sum is divided by the reported workload to obtain the efficient unit cost.

The Net Capex Investment Category table details the allocation of expenditure to categories as specified in Section 2.7

4.3.3.5 Efficiency Analysis Summary

The following tables summarise the outputs from the analysis. Efficient Net Capex and unit costs are assessed by the analysis process.

Connections – Total Mains

Analysis Summary – Total Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Actual Gross Capex	6.1	4.3	4.0
Actual Contributions	2.0	3.1	3.0
Actual Net Capex	4.1	1.2	1.0
% of Net Capex Invalid Due to Under Recovery	43%	43%	43%
Actual Gross Capex	6.1	4.3	4.0
Contribution Adjusted for Under Recovery	3.8	3.6	3.5
Net Capex	2.3	0.7	0.6
% of Gross Capex which is Inefficient	2%	2%	2%
Efficient Gross Capex	5.9	4.2	3.9
Efficient Contributions	3.7	3.5	3.4
Efficient Net Capex	2.3	0.7	0.6
Actual Volume (km)	119	94	50
Efficient Unit Cost (£/m)	50	45	78

Table 23

Analysis Summary – Total Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	4.1	1.2	1.0
Wasteful/Unnecessary Expenditure	1.8	0.6	0.5
Allowed Workload	2.2	0.7	0.6
Additional Workload	0.1	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0

Table 24

Connections – Total Services

Analysis Summary – Total Services All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Actual Gross Capex	19.5	15.7	19.4
Actual Contributions	7.4	7.2	8.0
Actual Net Capex	12.2	8.5	11.5
% of Net Capex Invalid Due to Under Recovery	16%	16%	16%
Actual Gross Capex	19.5	15.7	19.4
Contribution Adjusted for Under Recovery	9.3	8.6	9.8
Net Capex	10.2	7.1	9.6
% of Gross Capex which is Inefficient	2%	2%	12%
Efficient Gross Capex	19.0	15.3	17.1
Efficient Contributions	9.1	8.4	8.6
Efficient Net Capex	10.0	6.9	8.5
Actual Volume (No.)	22,184	20,854	18,377
Efficient Unit Cost (£/service)	858	734	933

Table 25

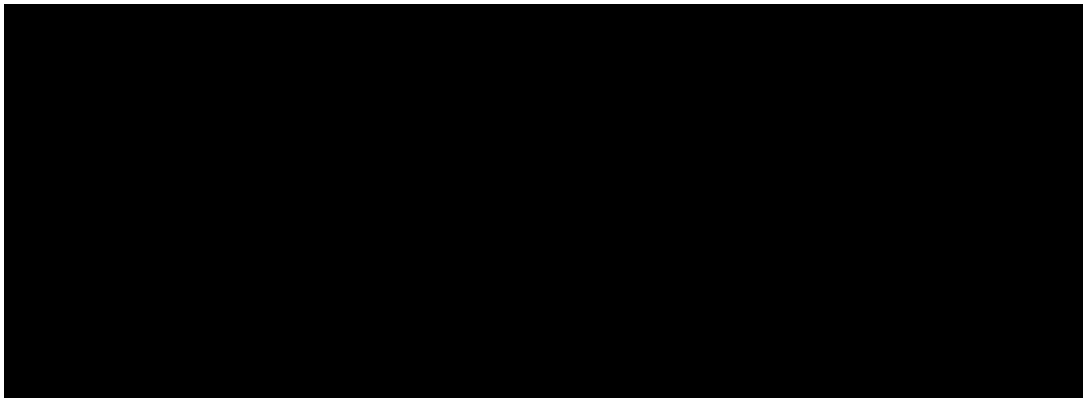
Analysis Summary – Total Services All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	12.2	8.5	11.5
Wasteful/Unnecessary Expenditure	2.2	1.5	3.0
Allowed Workload	10.0	6.9	8.5
Additional Workload	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0

Table 26

4.4 **FORECAST EXPENDITURE**

Connections Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
GDN Forecast Net Investment	16.2	9.7	12.5	16.9	14.8	70.1	14.5
Adjustments	4.0	2.1	3.4	5.4	3.4	18.4	3.2
Connections Mains	1.8	0.6	0.5	2.0	1.2	6.0	1.2
Connections Services	2.2	1.5	3.0	3.5	2.2	12.4	2.0
Ofgem Adjusted Forecast Net Investment	12.2	7.6	9.1	11.5	11.4	51.8	11.3
Allowed Workload	12.1	7.6	9.1	9.3	7.8	46.0	
Additional Workload	0.1	0.0	0.0	2.1	3.6	5.8	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 27



Traffic Management Act (TMA)

We understand that SGN's forecasts do not include any costs associated with the TMA.

4.4.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

4.4.1.1 Connections – Mains

The gross expenditure and workload variances for the 2 year period are 334% and 2% respectively.

Contributions for the 2 year period are 117% in excess of the allowance.

For the purposes of high level comparison connections mains expenditure includes minor levels of expenditure allocated by Scotland to connections governors, for which there is no separate allowance.

Connections (Mains)		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Gross (£m)	Actual	6.1	4.3	4.0	7.0	5.6	27.0
	Allowance	2.8	2.3	2.0	1.6	1.3	10.0
	Variance	3.3	2.0	2.1	5.4	4.3	17.1
Contributions (£m)	Actual	2.0	3.1	3.0	3.5	2.8	14.5
	Allowance	2.7	2.3	2.1	1.6	1.3	9.9
	Variance	-0.7	0.8	1.0	1.9	1.5	4.5
Net (£m)	Actual	4.1	1.2	1.0	3.5	2.8	12.6
	Allowance	0.1	0.0	-0.1	0.1	0.0	0.0
	Variance	4.0	1.3	1.1	3.4	2.8	12.6
Workload (km)	Actual	119	94	50	58	78	400
	Allowance	115	102	88	73	60	438
	Variance	5	-9	-38	-14	18	-39

Table 28

Connections - Services

The gross expenditure and workload variances for the 2 year period are 302% and 37% respectively. The actual work volume undertaken is driven by customer requirements and, therefore, we consider it to be necessary.

Contributions for the 2 year period are 111% above the allowance which reflects the workload variance.

Connections (Services)		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Gross (£m)	Actual	19.5	15.7	19.4	22.5	20.1	97.3
	Allowance	9.3	8.6	7.6	5.8	4.8	36.1
	Variance	10.2	7.2	11.8	16.7	15.3	61.2
Contributions (£m)	Actual	7.4	7.2	8.0	9.1	8.1	39.7
	Allowance	6.7	6.1	5.4	4.3	3.8	26.4
	Variance	0.6	1.1	2.6	4.7	4.3	13.4
Net (£m)	Actual	12.2	8.5	11.5	13.4	12.0	57.5
	Allowance	2.6	2.4	2.2	1.5	1.0	9.7
	Variance	9.6	6.1	9.3	11.9	11.0	47.8
Workload (No.)	Actual	22,184	20,854	18,377	20,852	20,370	102,637
	Allowance	25,963	24,066	20,840	16,424	13,658	100,951
	Variance	-3,779	-3,212	-2,463	4,428	6,712	1,686

Table 29

4.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

We presume that the forecasts for 2005/06 and 2006/07 are based on historic investment performance and, therefore, the reasons stated by the GDN for historic variances also influence the forecasts. On this basis our views on the variances associated with Historic Expenditure (Apr 2002 to Mar 2005) are also relevant in terms of the forecasts. See Section 4.3.2.

4.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

4.4.3.1 In-sourcing of Connections Activities

During the period 2002/03 to September 2005, Fulcrum Connections undertook all connections activities on behalf of Scotland and the other GDNs. The Service Provider Contract (SPC) formed the basis for the contractual relationship between Scotland and FC. NGG coordinated the interface between FC and the GDNs.

Following acquisition of the network SGN declared the intention to in-source all connections activities and served notice to terminate the contract with Fulcrum Connections with effect from April 2006. At that date the Fulcrum Connections employees transferred to SGN subsidiary organisations. Staff employees transferred to SGN connections and industrial staff, including EPC contractor employees assisting FC direct labour team leaders, transferred to SGN contracting. SGN intends to review the terms and conditions of employment for these employees over the next two years, and has also stated that additional recruitment into SGN contracting will be considered in order to further reduce dependency on EPC resources.

The primary concerns that led to that decision to in-source were regarding FC's ability to achieve standards of service, as required by the licence, and the perceived need to take control of the connections business.

No information has been provided in terms of cost benefit analysis but SGN has indicated that connections charges will not be increased in real terms over the period 2005/06 to 2006/07 which represents a 9% compound reduction in prices. The in-source arrangements

are expected to deliver reductions in the cost base but no detailed assessment has been provided in this respect. The cost benefits will be determined over the initial 2 years and will be reflected in price adjustments in due course. We recommend that this matter is re-visited for the 5 year PCR.

4.4.3.2 Analysis Process

As stated previously, we presume that the forecasts for 2005/06 and 2006/07 are based on historic performance. Therefore, the inefficiencies identified and quantified for the period 2002/03 to 2004/05 will also influence the forecasts which, in our opinion, are inaccurate as a consequence. Our analysis process for the historic period has also been applied to the forecasts in order to assess the degree of inaccuracy.

Section 4.3.3 provides full details of the analysis process and the adjustments applied for the forecast period follow in this section of the report.

Summary of Adjustments to Connections Gross Capex

The adjustments applied to forecast gross connections Capex are summarised as follows:

- i) Improved contract labour management: -3% applied to contract labour cost for all years except where a higher adjustment for unit cost alignment is made.
- ii) Contract labour cost adjustment to align unit cost with trend:

Mains:	2005/06	-30%
Services:	2005/06	-15%
- iii) Improved direct labour management: -7.5% applied to direct labour costs for all years.

Summary of Adjustments to Connections Net Capex

The adjustments applied to mains Net Capex are summarised as follows:

- i) Time lag: -15.0% adjustment to Net Capex for all years
- ii) Under recovery of costs: -28.0% adjustment to Net Capex for all years.
- iii) Total adjustment: -43.0% to Net Capex for all years.

The adjustments applied to services Net Capex are summarised as follows:

- i) Time lag: -15.0% adjustment to Net Capex for all years
- ii) Under recovery of costs: -1.0% adjustment to Net Capex for all years.
- iii) Total adjustment: -16.0% to Net Capex for all years.

4.4.3.3 Analysis Summary

The following tables summarise the outputs from the analysis. Efficient Net Capex and unit costs are assessed by the analysis process and are indicated.

Connections – Total Mains

Analysis Summary – Total Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Actual Gross Capex	6.1	4.3	4.0	7.0	5.6
Actual Contributions	2.0	3.1	3.0	3.5	2.8
Actual Net Capex	4.1	1.2	1.0	3.5	2.8
% of Net Capex Invalid Due to Under Recovery	43%	43%	43%	43%	43%
Actual Gross Capex	6.1	4.3	4.0	7.0	5.6
Contribution Adjusted for Under Recovery	3.8	3.6	3.5	5.0	4.0
Net Capex	2.3	0.7	0.6	2.0	1.6
% of Gross Capex which is Inefficient	2%	2%	2%	24%	2%
Efficient Gross Capex	5.9	4.2	3.9	5.4	5.4
Efficient Contributions	3.7	3.5	3.4	3.8	3.9
Efficient Net Capex	2.3	0.7	0.6	1.5	1.5
Actual Volume (km)	119	94	50	58	78
Efficient Unit Cost (£/m)	50	45	78	92	70

Table 30

Analysis Summary – Total Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Reported Net Investment	4.1	1.2	1.0	3.5	2.8
Wasteful/Unnecessary Expenditure	1.8	0.6	0.5	2.0	1.2
Allowed Workload	2.2	0.7	0.6	1.5	1.2
Additional Workload	0.1	0.0	0.0	0.0	0.4
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0

Table 31

Connections – Total Services

Analysis Summary – Total Services All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Actual Gross Capex	19.5	15.7	19.4	22.5	20.1
Actual Contributions	7.4	7.2	8.0	9.1	8.1
Actual Net Capex	12.2	8.5	11.5	13.4	12.0
% of Net Capex Invalid Due to Under Recovery	16%	16%	16%	16%	16%
Actual Gross Capex	19.5	15.7	19.4	22.5	20.1
Contribution Adjusted for Under Recovery	9.3	8.6	9.8	11.2	10.0
Net Capex	10.2	7.1	9.6	11.3	10.1
% of Gross Capex which is Inefficient	2%	2%	12%	12%	2%
Efficient Gross Capex	19.0	15.3	17.1	19.8	19.6
Efficient Contributions	9.1	8.4	8.6	9.9	9.8
Efficient Net Capex	10.0	6.9	8.5	9.9	9.8
Actual Volume (No.)	22,184	20,854	18,377	20,852	20,370
Efficient Unit Cost (£/service)	858	734	933	951	962

Table 32

Analysis Summary – Total Services All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Reported Net Investment	12.2	8.5	11.5	13.4	12.0
Wasteful/Unnecessary Expenditure	2.2	1.5	3.0	3.5	2.2
Allowed Workload	10.0	6.9	8.5	7.8	6.6
Additional Workload	0.0	0.0	0.0	2.1	3.2
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0

Table 33**4.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)****4.4.4.1 Analysis Process**

The efficiency analysis process detailed in Section 4.3.3 is applied to assess efficient/adjusted unit costs. We recommend that forecast expenditure for 2007/08 reflects the historic efficient unit cost trend and we have adjusted the reported forecasts on this basis

4.4.4.2 Reported Workload Trend

Connections – Mains

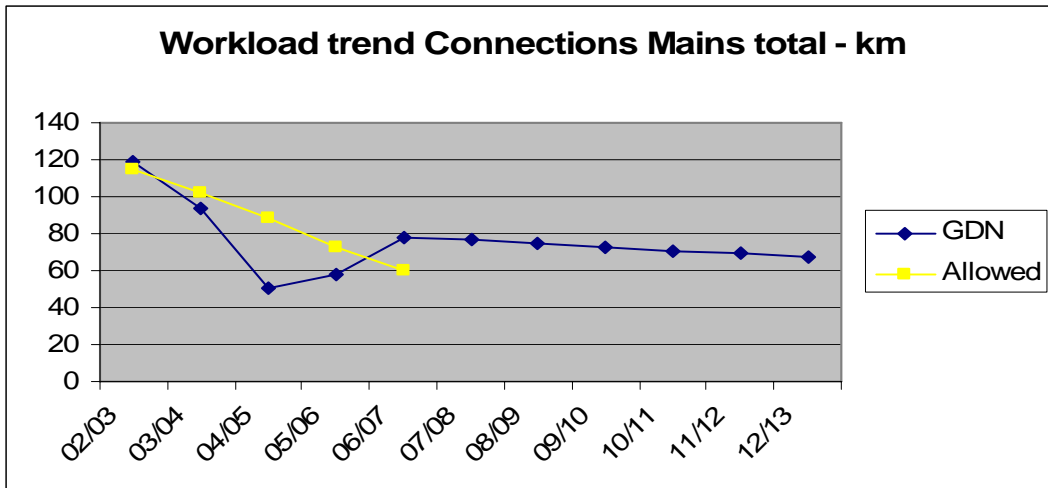


Figure 9

Mains workload forecasts are aligned with historic trends and no issues are identified in this respect. Therefore we recommend that no adjustment is applied to the reported workload.

Connections – Services

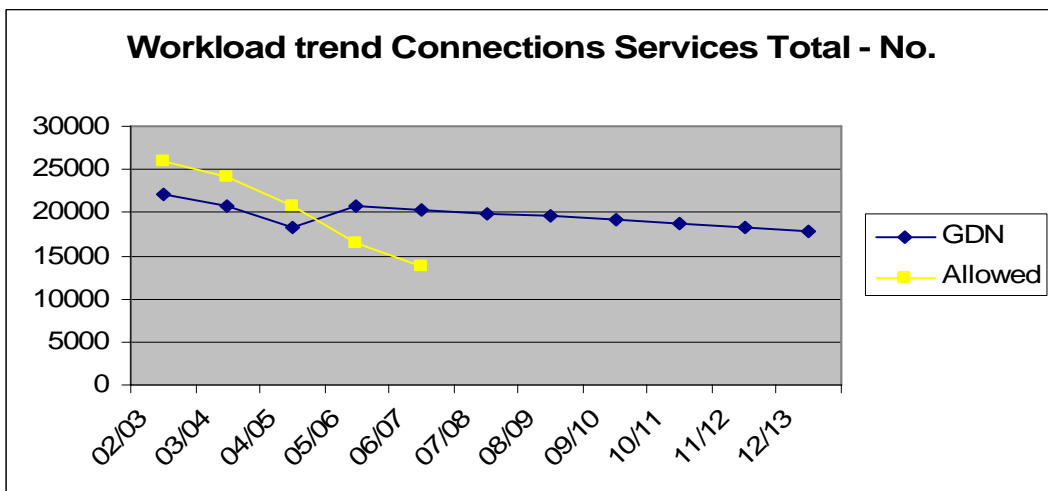


Figure 10

Services workload forecasts are aligned with historic trends and no issues are identified in this respect. Therefore we recommend that no adjustment is applied to the reported workload.

4.4.4.3 Forecast Assessment

Net Capex

A critical issue in terms of forecast accuracy for the period post 2006/07 is assessment of efficient connections Net Capex for both mains and services activities. The factors affecting Net Capex are detailed in Appendix 3 - Fulcrum Connections and are considered in Section 4.3.3 – Efficiency Analysis. A clear understanding of the cost implications of the factors is essential to inform the Net Capex forecasting process. We recommend that SGN identifies actions to address the inefficiencies identified and applies appropriate assumptions in this respect to develop an accurate assessment of Net Capex for 2007/08. As a minimum requirement, we are of the opinion that the reported mains and services Net Capex forecast should be adjusted in accordance with Section 4.3.3. This results in an adjustment of -£3.2m.

Also, we recommend that management information systems employed include comprehensive, detailed analysis of Net Capex performance to ensure effective monitoring, and to inform review of standard charges.

Gross Capex - Mains

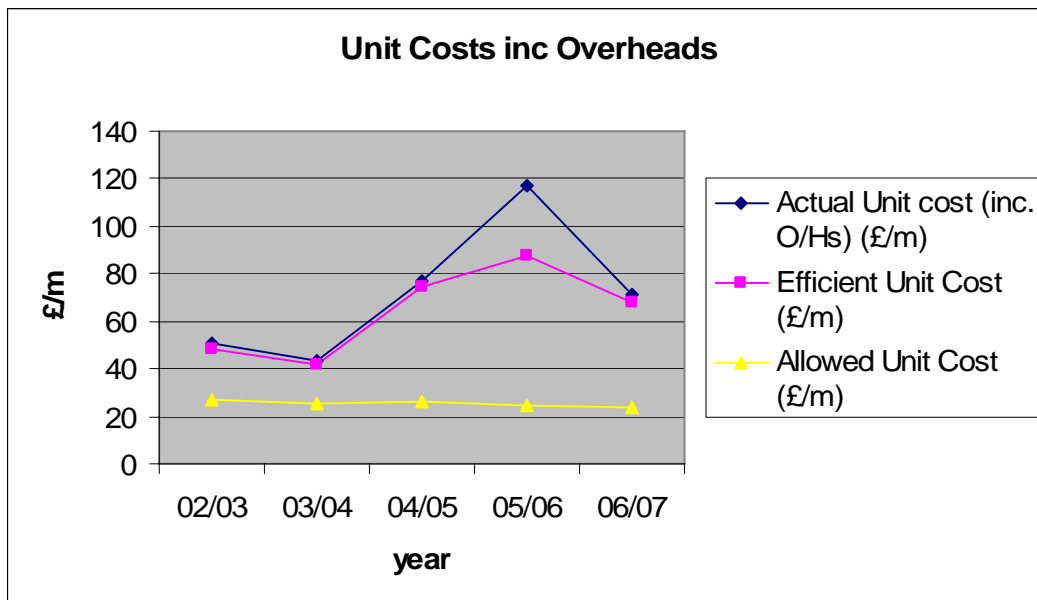
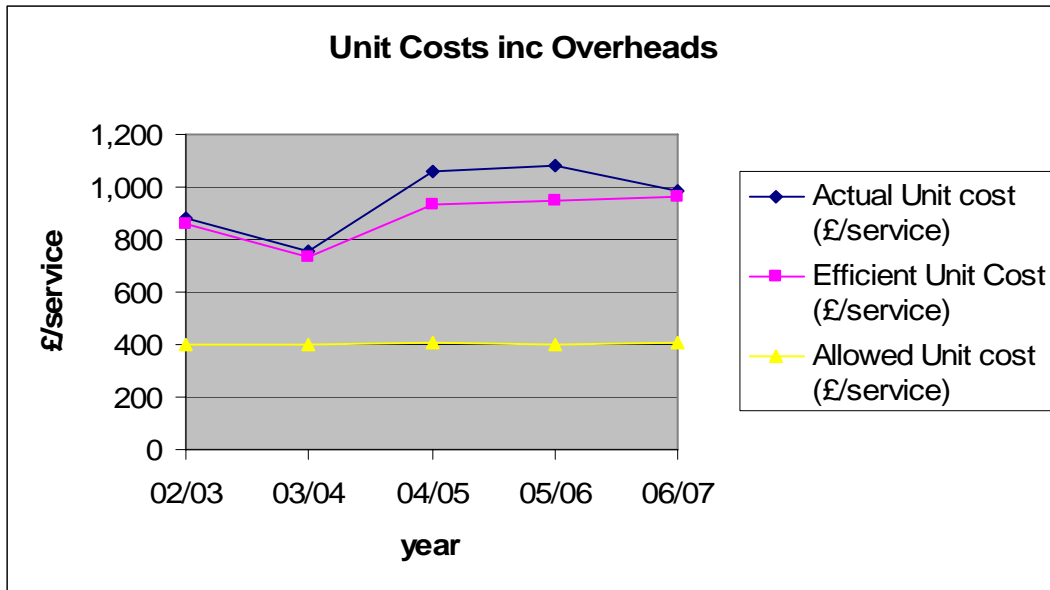


Figure 11

The workload balance does not provide any indication of the reason for the actual unit cost increase in 2005/06. This matter has been addressed in the analysis process by an adjustment to determine the efficient unit cost.

We recommend that forecast expenditure is based on the historic efficient unit cost trend. On this basis the unit cost inclusive of overheads will be in the range £60/m to £80/m.

The mid-point cost of £70/m applied to the forecast workload at 76.6 km results in an indicative 2007/08 expenditure forecast of £5.4m, including overheads, for connections total mains. Compared to the reported forecast at £5.5m, the variance is -£0.1m.

Gross Capex - Services**Figure 12**

The workload balance does not provide any indication of the reason for the actual unit cost increases in 2004/05 and 2005/06. This matter has been addressed in the analysis process by adjustments to determine the efficient unit cost.

We recommend that forecast expenditure is based on the historic efficient unit cost trend. On this basis the unit cost inclusive of overheads will be in the range £950/service to £990/service.

The mid-point cost of £970/service applied to the forecast workload at 19951 results in an indicative 2007/08 expenditure forecast of £19.4m, including overheads, for connections total services. Compared to the reported forecast at £19.7m, the variance is -£0.3m.

4.4.4.4 Recommendations

- i) We recommend that management information systems employed include comprehensive, detailed analysis of Net Capex performance to ensure effective monitoring, and to inform review of standard charges.
- ii) We recommend that no adjustment is applied to the reported workloads for mains and services.
- iii) We recommend that SGN identifies actions to address the inefficiencies associated with Net Capex performance and applies appropriate assumptions in this respect to develop accurate Net Capex forecasts for 2007/08.

As a minimum requirement, we are of the opinion that the reported mains and services Net Capex forecast be adjusted in accordance with Section 4.3.3. This results in an adjustment of -£3.2m.

- iv) Our recommendations regarding the forecasts are summarised below:

Summary – Connections Forecast 2007/08		
	Mains	Services
All figures £m 2005/06 Prices		
Reported Gross Investment Forecast	5.5	19.7
Reported Contributions	2.7	7.9
Reported Net Capex	2.8	11.8
Ofgem Adjusted Gross Investment Forecast	5.4	19.4
Ofgem Adjusted Contributions	3.8	9.6
Ofgem Adjusted Net Capex	1.6	9.8

Table 34

4.5 FORECAST TRENDS (2002 TO 2013)

4.5.1 HIGH LEVEL TREND

Connections – Mains

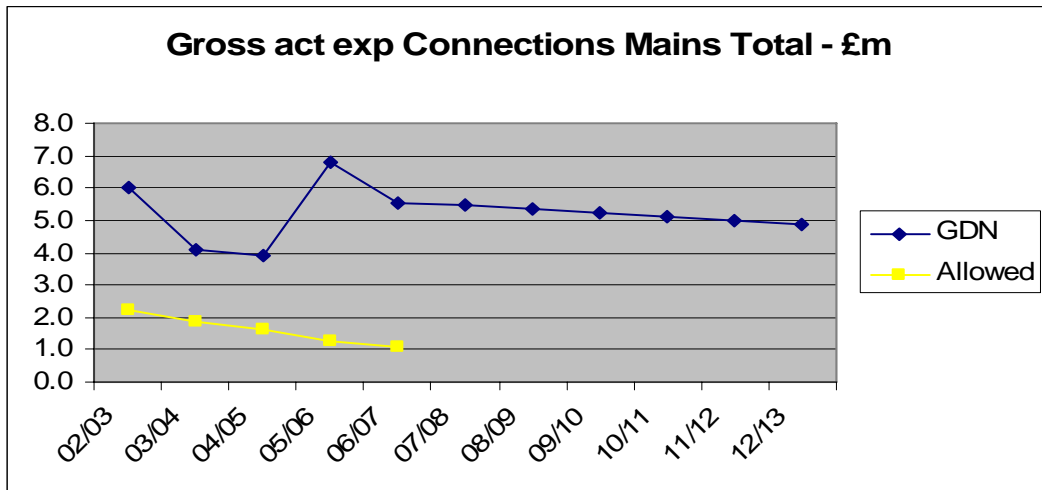


Figure 13

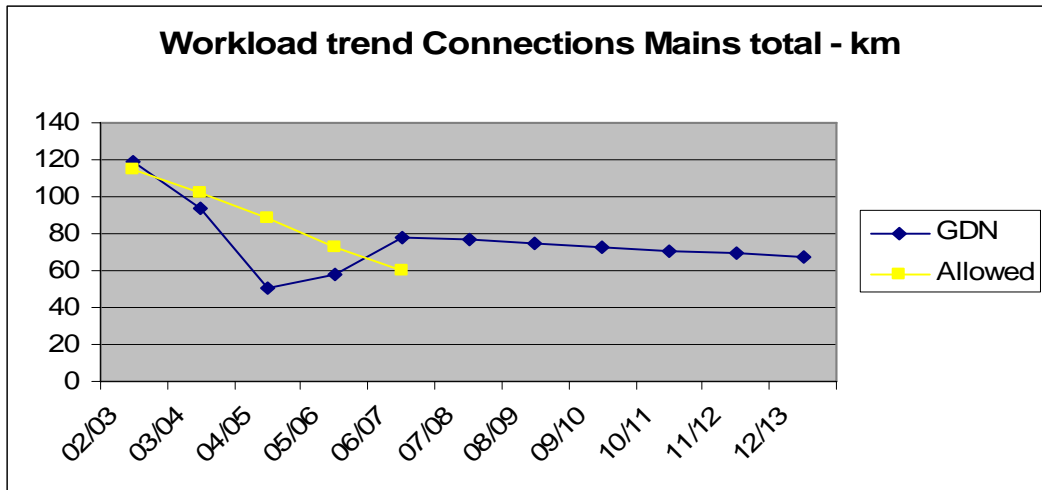


Figure 14

Connections – Services

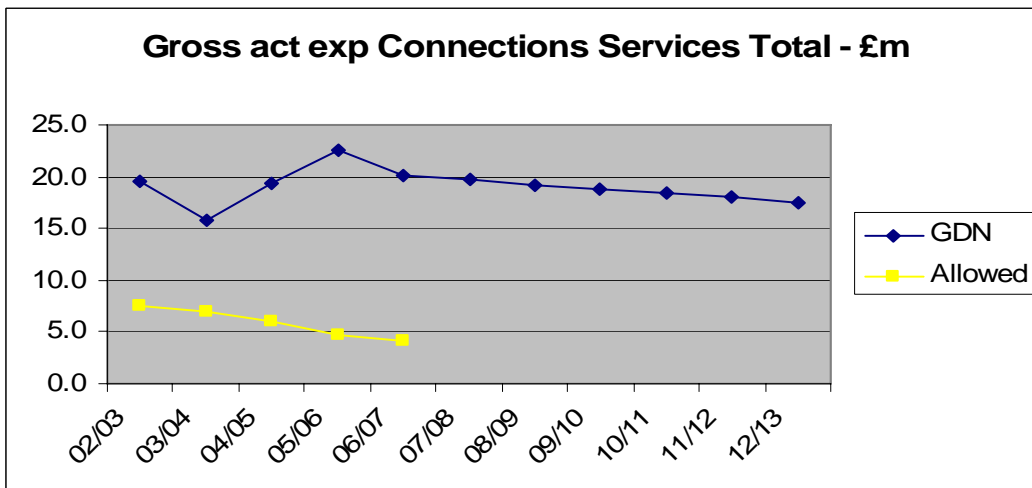


Figure 15

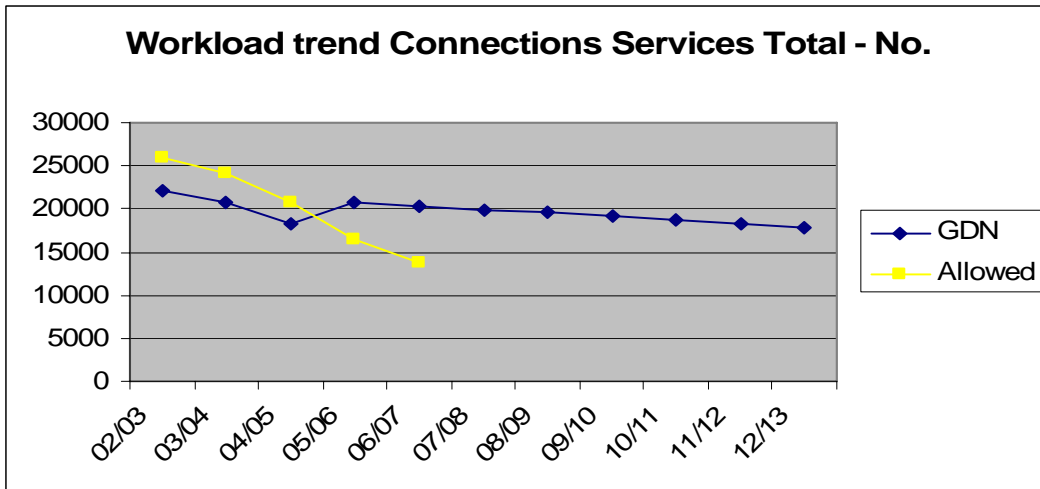


Figure 16

4.5.2 COMMENTS ON TREND

We have not identified any issues regarding the mains and services forecast expenditure and workload trends.

5 MAINS AND GOVERNOR CAPEX

5.1 SUMMARY OF FINDINGS

This section considers the combined Reinforcement Mains and Governors Capex.

5.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	65.0	10.4	75.4
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Ofgem Adjusted Net Investment	65.0	10.4	75.4

Table 35

The Net Capex summary figures are given in Table 34. Reported Net Investment as provided by the GDN and PB Power's recommendation for Ofgem's adjusted Net Investment.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Unit cost trends and comparisons.
- Review of workload trends.
- Review of expenditure trends

Key Issues

- Information for the period January 2001 to March 2002 is reported by NGG on a total UK basis only. Therefore we are unable to provide an assessment of investment performance specifically relating to Scotland.

Categorisation of Incurred Expenditure

- We consider the total expenditure of £75.4m to be efficiently incurred.

5.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

The Net Capex summary figures are given in Table 35. These show the initial Allowed Net Investment from the last control, SGN's Reported Net Investment and finally PB Power's recommendation for Ofgem's Adjusted Net Investment.

Overspend

- The GDN Reported Net Investment is forecast to be £28.7m which is £9.3m (48%) in excess of the Net Capex allowance.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Review of processes to monitor and control expenditure & projects.
- Assessment of Net Capex drivers.
- Unit cost trends and comparisons.
- Management of contract arrangements.
- Review of processes to manage direct labour productivity.
- Procurement policies and procedures.

Key Issues

- Data quality has inhibited analysis and comparison of cost performance.

Categorisation of Incurred Expenditure

- £0.6m of reinforcement mains and governors expenditure has been assessed as inefficient.

Categorisation of Forecast Expenditure

- £0.3m of reinforcement mains and governors expenditure has been assessed as inefficient.

Net Capex All figures £m 2005/06 prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total	2007/08
Allowed Net Investment	4.8	4.1	3.8	3.5	3.3	19.4	
Total GDN Variance	3.6 75%	1.1 27%	0.3 7%	-0.1 -2%	4.4 134%	9.3 48%	
Reported Net Investment	8.4	5.2	4.0	3.4	7.6	28.7	9.7
Wasteful/Unnecessary Actual Expenditure	0.3	0.2	0.1			0.6	
Adjustments to Forecasts				0.1	0.2	0.3	0.5
Ofgem Adjusted Net Investment	8.1	5.1	3.9	3.3	7.4	27.8	9.2
Allowed Workload	7.7	5.1	3.9	3.3	5.9	25.9	
Additional Workload	0.4	0.0	0.0	0.0	1.5	1.9	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 36

5.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	65.0	10.4	75.4
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Ofgem Adjusted Net Investment	65.0	10.4	75.4

Table 37

5.2.1 ANALYSIS PROCESS

Information for the period January 2001 to March 2002 is reported by NGG on a total UK basis only. Therefore we are unable to provide an assessment of investment performance specifically relating to Scotland.

We have reviewed reinforcement mains unit cost performance and workload for the period based on comparison with trends for the period 2002/03 to 2004/05. Similar analysis for governors is not possible as workload information has not been provided.

Governors gross expenditure levels for the period 2001 to Q1 2002 are consistent with the trend to 2004/05 and no issues have been identified in this respect.

The following chart indicates the reinforcement mains total UK unit cost movements over the period 2001 to 2004/05.

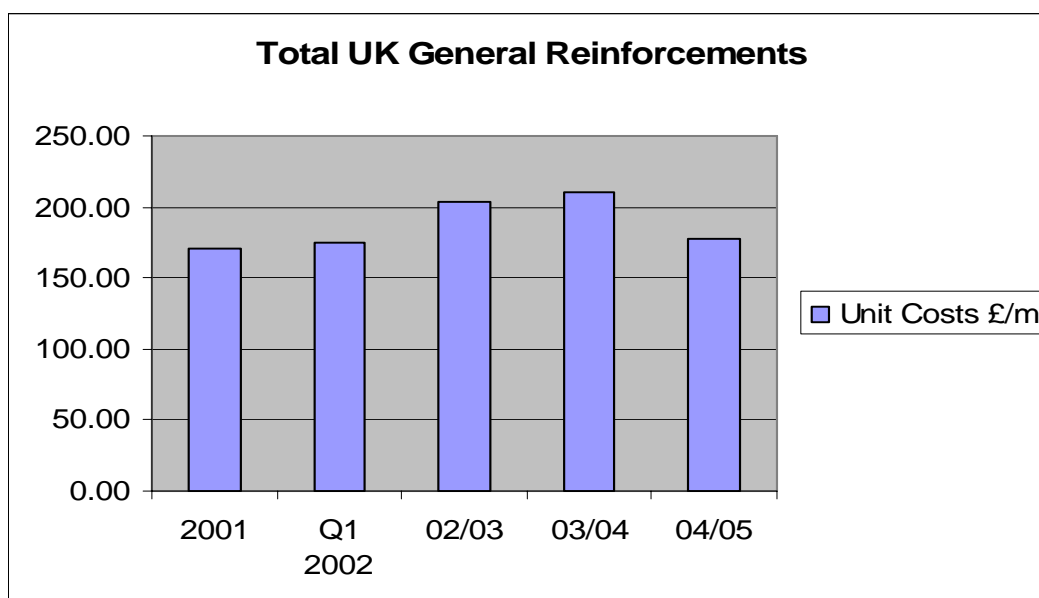


Figure 17

Reinforcement mains unit cost performance levels for the period 2001 to Q1 2002 are consistent with the trend to 2004/05 and no issues have been identified in this respect.

The following chart indicates the total UK workload movements over the period 2001 to 2004/05.

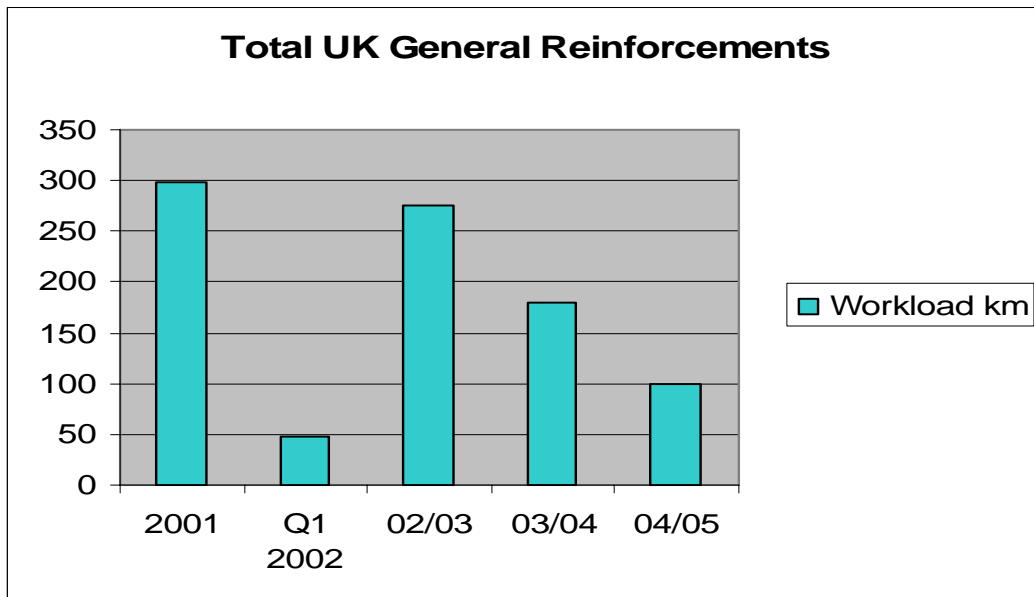


Figure 18

We presume that the high reinforcement mains workload in 2001 resulted from the Transco initiated validation programme in 1999/2000 to validate all low and medium pressure networks and was necessary to ensure security of supply.

5.2.2 RECOMMENDATIONS

We recommend that the reported Net Capex for reinforcement mains and governors activities be accepted as we have not identified any investment efficiency issues that would indicate otherwise.

5.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

5.3.1 HIGH LEVEL VARIANCES ANALYSIS

This section of the report provides a review of reinforcement mains and governors expenditure performance compared to allowances for the period 2002/03 to 2004/05. Workload information is included to support understanding of expenditure variances.

Expenditure and allowances are inclusive of capitalised overheads.

5.3.1.1 Reinforcement Mains

The gross expenditure and workload variances for the 3 year period are 18% and -17% respectively.

Mains - General Reinforcement		2002/03	2003/04	2004/05	3 year Total
All figures £m 2005/06 Prices					
Gross (£m)	Actual	6.7	3.8	2.4	12.9
	Allowance	3.8	3.7	3.5	11.0
	Variance	2.9	0.1	-1.1	2.0
Workload (km)	Actual	27	21	13	61
	Allowance	25	25	24	74
	Variance	2	-4	-11	-13

Table 38

5.3.1.2 Governors

The gross expenditure is in excess of the allowance for the 3 year period and the variance is 182%. The allowances did not specify workload for governors and variances in this respect are not available therefore.

Governors		2002/03	2003/04	2004/05	3 year Total
All figures £m All figures £m					
Gross	Actual	1.7	1.4	1.6	4.8
	Allowance	1.0	0.4	0.3	1.7
	Variance	0.8	1.0	1.4	3.1
Contributions	Actual	0.1	0.0	0.0	0.1
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.1	0.0	0.0	0.1
Net	Actual	1.7	1.4	1.6	4.7
	Allowance	1.0	0.4	0.3	1.7
	Variance	0.7	1.0	1.4	3.0

Table 39

5.3.2 REASONS FOR VARIANCES

5.3.2.1 Reinforcement Mains

The level of expenditure for 2002/03 is driven by a high unit cost resulting from the workload balance which is biased towards the larger pipe diameters.

Scotland has indicated that both workload and costs include non-contiguous specific reinforcement work which could not be separated and allocated to connections specific reinforcement. This issue will be clarified for the 5 year PCR.

5.3.2.2 Governors

The overall workload balance is biased towards growth which is driven by reinforcement/security of supply, and necessary therefore.

We do not expect any contributions associated with this activity category and, therefore, we presume that the £0.08m reported over the 3 year period is an error.

5.3.3 EFFICIENCY ANALYSIS

Mains and Governor Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	8.4	5.2	4.0	17.7
Wasteful/Unnecessary Expenditure	0.3	0.2	0.1	0.6
Reinforcement Mains	0.2	0.1	0.1	0.4
Governors	0.1	0.1	0.0	0.1
Ofgem Adjusted Net Investment	8.1	5.1	3.9	17.1
Allowed Workload	7.7	5.1	3.9	16.7
Additional Workload	0.4	0.0	0.0	0.4
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 40

5.3.3.1 Gross Capex

We have carried out various analyses to assess the efficiency of reinforcement mains and governors Gross Capex, including:

- Trends in unit costs.
- Unit cost comparisons
- Review of the processes to manage direct labour productivity.
- Project management processes
- Project review
- Overspend project review
- Procurement processes – EPCs and materials.

Unit Cost Trends

The analysis process incorporates examination of unit cost trends to identify exceptional misaligned movements. We regard such exceptional unit costs as an indication of inefficiency, unless there is relevant workload balance justification or narrative response information providing an explanation. Workload balance is assessed by examination of workload pipe diameter split information and governor category split between replacement and growth. Where there is no evidence to justify the unit cost level we have applied an appropriate adjustment to the contract labour cost element in order to determine the efficient unit cost.

The following graph provides an example of the effect of this adjustment on actual unit costs and an indication of the resulting efficient unit cost in alignment with the overall trend.

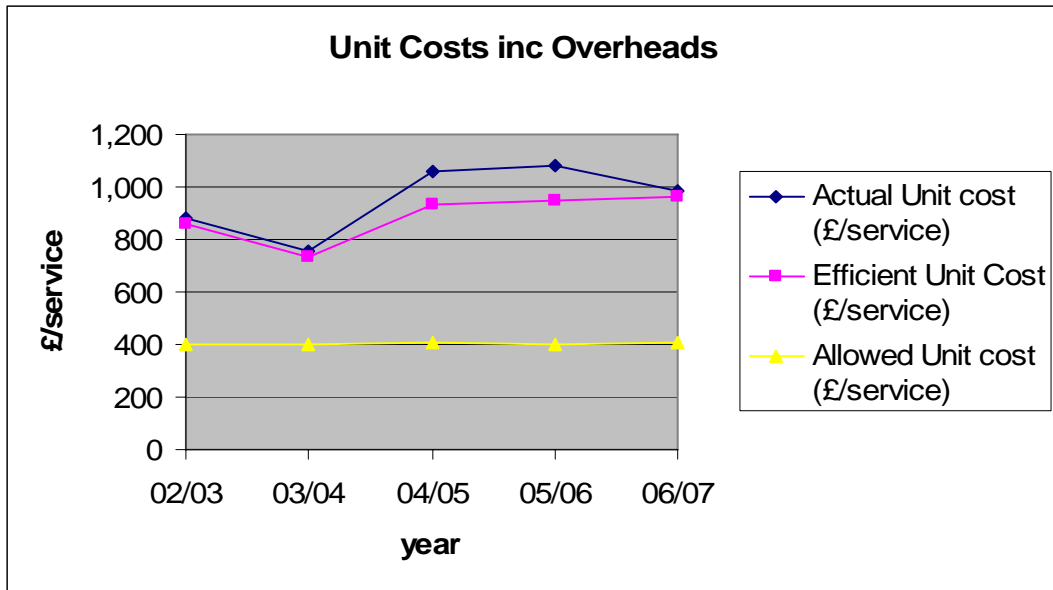


Figure 19

Unit Cost Comparisons

The charts below show the actual unit costs, inclusive of overheads, for all GDNs at 2005/06 prices adjusted by indexation to take into account regional (geographic) price variations. Indexation in this way facilitates meaningful comparison of unit cost performance. The indices used are based on the RICS Building Cost Information Service published indices, as used by Ofwat for this purpose.

The validity of these comparisons is dependent on the consistency of the expenditure and workload information reported by all GDNs. We are of the opinion that the information reported by the GDNs is not sufficiently reliable for use as a basis for comparison analysis and efficiency assessment. Therefore we regard the results as indicative only and no assessment of relative efficiency has been undertaken.

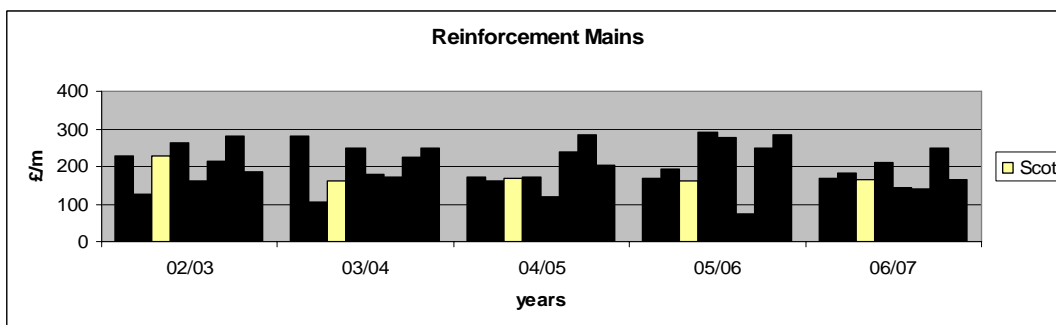


Figure 20

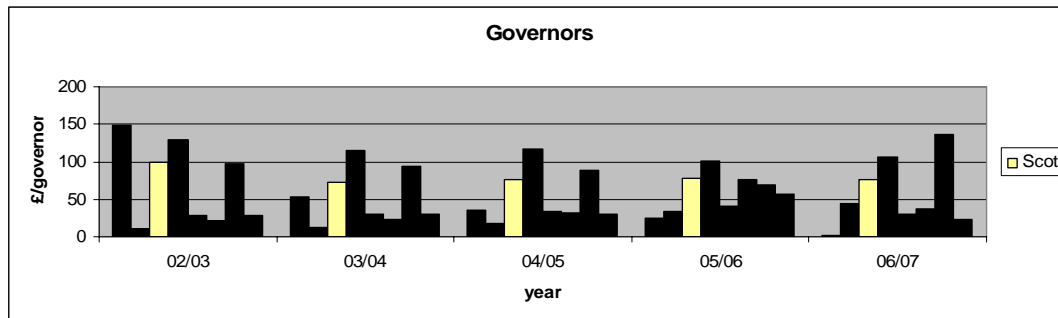


Figure 21

Direct Labour Productivity

Review of the processes to manage direct labour productivity did not reveal evidence of routine, detailed information, including unproductive time analysis, to monitor, manage and set performance improvement targets for direct labour productivity on an individual basis. We consider that direct labour cost performance is, to a degree, inefficient without the focus provided by appropriate management information and periodic review. Therefore, we have applied a -7.5% adjustment to direct labour costs in the analysis process, which in our opinion is achievable with such an approach.

Project Management Processes

SGN has adopted NGG Policies and Procedures which include requirements for project management. Since acquiring the networks SGN has amended some aspects of policy affecting project management processes, including:

- Review of authority levels to ensure consistency between the networks (Scotland and Southern)
- Project overspend reviews are triggered at £100k
- Improved quality and consistency of business cases.
- Ongoing major review of key technical policies.

SGN Investment Committee (IC) project monitoring processes are established and costs are monitored to ensure that control mechanisms are applied. Live projects are monitored and projects forecast to fall outside of policy tolerances are subject to re-submission.

Examination of an IC monthly meeting agenda and project documents confirms that project submissions include:

- Assessment of risk, e.g. cost consequences associated with failure of supply.
- Reference to lessons learned from previous projects.
- Alternative proposals, including cost estimates.
- Least cost optimum engineering solution recommendation.
- Consideration of network policy mains replacement plans to ensure that the optimum combined solution is adopted.
- PCR selection.

Post Completion Review (PCR) is carried out for a mix of project types and approximately 12 projects are reviewed annually. The selection criteria are not defined in relation to approved cost and a project may simply be selected on the basis of the unique technical issues

involved. The IC receives the PCR reports for approval and dissemination of lessons learned, both positive and negative. Post investment Appraisals (PIA) are carried out for a lesser number of major projects, generally associated with the LTS.

Senior Managers/Project Managers receive monthly reports providing details of all projects for which they are responsible. These reports comprise the project reference, authorised expenditure, spend to date variance to the authorised expenditure and spend in the month. Projects outside tolerance are reported to the IC. The tolerances applied are 10% overspend, 15% underspend, and overspend necessitating delegated authority at a higher level than that of the original approval. On-line systems facilitate investigation to determine the cause of project expenditure variances.

Routine MI reports provide activity unit cost performance analysis.

Individual reinforcement projects are designed using GBNA to determine the optimum solution for the particular network. Project cost estimations are based on EPC rates and are reviewed by operations managers to ensure that all risks have been assessed and relevant issues have been taken into account in the planning/costing process.

Further information regarding network planning and design processes is provided in, the Network Planning and Design Report (Appendix 1).

The management and control processes described for reinforcement expenditure also apply to governor replacement and upgrade projects.

We consider that project management policies and procedures are fit for purpose in terms of overall expenditure control to ensure efficient investment.

Project Reviews

The South East Wedge, Edinburgh MP Network Reinforcement project was selected for review.

The project submission to the Transco Investment Committee (TIC) in June 2001 sought approval for reinforcement of the MP system to meet the predicted peak demand for the 2002/03 winter period and beyond. The capacity of the existing 0.41bar operating pressure MP system was not adequate to ensure supply into the downstream LP networks. Alternative options were presented in the submission and the least cost solution was recommended for approval. Supporting information included an assessment of network risks.

The recommended reinforcement scheme formed phase 1 of a 4 phase strategy to meet anticipated demand growth on the network, with the final phase provisionally timed for 2010.

The project works comprised 1800m of 500mm MDPE MP main terminating at a governor installation supplying into the 'local' 0.41bar MP system. The authorised expenditure was £605k.

During construction, it was necessary to lay an additional 285m of 500mm main due to relocation of the governor installation site, at an additional cost of £124k. The project was re-submitted in July 2004 to obtain retrospective authorisation for the revised scope and additional cost.

The project documents examined indicate broad compliance with the policies and procedures described above. However, we presume that the requirement for additional works was identified at an early stage in the construction process and, therefore, authorisation should have been obtained in advance of incurring the associated expenditure.

In conclusion, we have found no evidence of inefficiency in the project management and overspend management processes.

Procurement – EPCs

Most of the GDN's reinforcement mains and governors construction work is carried out by contractors via EPC contracts. Initially of the target price format with efficiency sharing incentives, these contracts were changed (w.e.f. April 2002) to a fixed price format through re-tender by the incumbents and subsequent negotiation.

The EPC contracts in place at this time were approaching their three year anniversary and possible termination. If the GDN wished to move to a new form of contract then an open market re-tender, rather than re-negotiation of the contracts, would have been appropriate.

We judge the increase relative to the move to fixed rates likely to be in the range 0 – 10% and have applied an adjustment of -5% to the contract labour cost element to reflect this for the period 2002/03 to 2006/07.

Procurement - Materials

Scotland utilised NGG policies and procedures for PE pipe and fittings procurement and therefore benefited from the leverage resulting from large volume purchasing arrangements. The purchasing contracts were novated to SGN when the network was acquired in 2005.

We have found no evidence to indicate that materials procurement and usage management processes are inefficient.

Appendix 2 provides further information regarding procurement processes.

Summary of Adjustments to Gross Capex

The adjustments applied to reinforcement mains and governors Gross Capex are summarised as follows:

- Improved contract labour management: -5% applied to contract labour cost for all years except where a higher adjustment for unit cost alignment is made.
- Contract labour cost adjustment to align unit cost with trend:
No adjustments made.
- Improved direct labour management: -7.5% applied to direct labour costs for all years.

5.3.3.2 Net Capex

Reinforcement mains and governors activities are not rechargeable and do not result in contributions. Net Capex is equal to Gross Capex therefore.

We do not expect any contributions associated with this activity category and, therefore, we presume that the £0.1m reported over the 3 year period is an error.

5.3.3.3 Analysis Process

The expenditure analysis process has been designed to take into account appropriate indexation for inflation, applied to both expenditure and allowances, and identified adjustments due to inefficiency. Outputs are summarised for comparison with allowances.

All analysis has been undertaken at 2005/06 Prices and GDN actuals, forecasts and allowances are re-stated on this basis.

A volume analysis is included to provide details of allowed and additional work volumes. This analysis identifies unnecessary and deferrable or unplanned work but we have not found any evidence to justify assigning any work to these categories.

The analysis summary tabulation sets out the information at each stage of the process to determine the efficient level of expenditure and unit cost:

- i) Actual gross expenditure including overheads – as reported by the GDN.
- ii) Efficiency adjustments to gross expenditure – expenditure adjustments based on the application of the adjustments specified.
- iii) Adjusted gross expenditure including overheads – actual gross expenditure (i) minus the efficiency adjustments (ii).
- iv) Contributions – as reported by the GDN.
- v) Actual Net Capex – actual gross expenditure including overheads (i) minus contributions (iv)
- vi) Adjusted Net Capex – adjusted gross expenditure including overheads (iii) minus contributions (iv).
- vii) Adjustments for under-recovery of contributions - expenditure adjustments based on the application of the efficiency adjustments specified.
- viii) Efficient Net Capex – adjusted Net Capex (vi) minus adjustments for under-recovery of contributions (vii).
- ix) Actual volume – as reported by the GDN.
- x) Efficient unit cost – based on the adjusted gross expenditure including overheads (iii) and the actual work volume (ix).

The Net Capex Investment Category table details the allocation of expenditure to categories as specified in Section 2.7.

5.3.3.4 Efficiency Analysis Summary

Reinforcement Mains

Analysis Summary – Reinforcement Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Actual gross expenditure including overheads	6.7	3.8	2.4
Efficiency adjustments to gross expenditure	-0.2	-0.1	-0.1
Adjusted gross expenditure including overheads	6.5	3.7	2.3
Contributions	0.0	0.0	0.0
Actual Net Capex	6.7	3.8	2.4
Adjusted Net Capex	6.5	3.7	2.3
Adjustments for under-recovery of contributions	0.0	0.0	0.0
Efficient Net Capex	6.5	3.7	2.3
Actual Volume – km	27	21	13
Efficient Unit cost - £/m	245.2	174.1	180.7

Table 41

Analysis Summary – Reinforcement Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	6.7	3.8	2.4
Wasteful/Unnecessary Expenditure	0.2	0.1	0.1
Allowed Workload	6.1	3.7	2.3
Additional Workload	0.4	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0

Table 42

Governors

Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Actual gross expenditure including overheads	1.7	1.4	1.6
Efficiency adjustments to gross expenditure	-0.07	-0.06	-0.02
Adjusted gross expenditure including overheads	1.7	1.4	1.6
Contributions	0.1	0.0	0.0
Actual Net Capex	1.7	1.4	1.6
Adjusted Net Capex	1.6	1.4	1.6
Adjustments for under-recovery of contributions	0.0	0.0	0.0
Efficient Net Capex	1.6	1.4	1.6
Actual Volume – No.	16	18	19
Efficient Unit cost - £/unit	104.8	76.6	83.8

Table 43

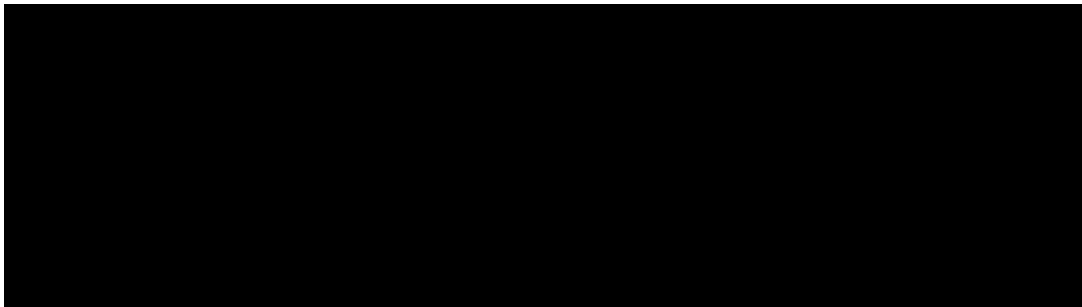
Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	1.7	1.4	1.6
Wasteful/Unnecessary Expenditure	0.1	0.1	0.0
Allowed Workload	1.6	1.4	1.6
Additional Workload	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0

Table 44

5.4 FORECAST EXPENDITURE

Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
GDN Forecast Net Investment	8.4	5.2	4.0	3.4	7.6	28.7	9.7
Adjustments	0.3	0.2	0.1	0.1	0.2	0.9	0.5
Reinforcement	0.2	0.1	0.1	0.1	0.2	0.7	0.5
Governors	0.1	0.1	0.0	0.0	0.0	0.2	0.0
Ofgem Adjusted Forecast Net Investment	8.1	5.1	3.9	3.3	7.4	27.8	9.2
Allowed Workload	7.7	5.1	3.9	3.3	5.9	25.9	
Additional Workload	0.4	0.0	0.0	0.0	1.5	1.9	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 45



Traffic Management Act (TMA)

SGN's forecasts do not include any costs associated with the TMA.

5.4.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

Reinforcement Mains

The gross expenditure and workload variances for the 2 year period are 38% and 5% respectively.

Mains - General Reinforcement		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Gross (£m)	Actual	6.7	3.8	2.4	2.6	5.5	21.1
	Allowance	3.8	3.7	3.5	3.2	3.0	17.2
	Variance	2.9	0.1	-1.1	-0.5	2.5	3.9
Workload (km)	Actual	27	21	13	15	30	105
	Allowance	25	25	24	22	21	117
	Variance	2	-4	-11	-7	9	-11

Table 46

Governors

The gross expenditure is in excess of the allowance for the 2 year period and the variance is 400%.

The allowances did not specify workload for governors and variances in this respect are not available therefore.

Governors		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Gross	Actual	1.7	1.4	1.6	0.8	2.2	7.7
	Allowance	1.0	0.4	0.3	0.3	0.3	2.2
	Variance	0.8	1.0	1.4	0.5	1.9	5.5
Contributions	Actual	0.1	0.0	0.0	0.0	0.0	0.1
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.1	0.0	0.0	0.0	0.0	0.1
Net	Actual	1.7	1.4	1.6	0.8	2.2	7.7
	Allowance	1.0	0.4	0.3	0.3	0.3	2.2
	Variance	0.7	1.0	1.4	0.5	1.9	5.4

Table 47

5.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

The significant increase in reinforcement mains workload in 2006/07 is substantially associated with the larger pipe diameters. There are no projects >£0.5m reported and Scotland has not provided any explanation.

Governors expenditure is also high in 2006/07, presumably associated with reinforcement as the bias is towards the growth category.

5.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

5.4.3.1 Analysis Process

We presume that the forecasts for 2005/06 and 2006/07 are based on historic performance. Therefore, the inefficiencies identified and quantified for the period 2002/03 to 2004/05 will also influence the forecasts which, in our opinion, are inaccurate as a consequence. Our analysis process for the historic period has also been applied to the forecasts in order to assess the degree of inaccuracy.

Section 5.3.3 provides full details of the analysis process and the adjustments applied for the forecast period follow in this section of the report.

Summary of Adjustments to Gross Capex

The adjustments applied to reinforcement mains and governors Gross Capex are summarised as follows:

- Improved contract labour management: -5% applied to contract labour cost for the period 2002/03 to 2005/06, except where a higher adjustment for unit cost alignment is made.
- Contract labour cost adjustment to align unit cost with trend:
No adjustments applied.

Note: The expenditure analysis report has not been provided for the period post 2004/05. Therefore, 65% contract labour has been assumed for the years 2005/06 and 2006/07 to facilitate completion of the analysis

- Improved direct labour management: -7.5% applied to direct labour costs for all years.

5.4.3.2 Analysis Summary

The following tables summarise the outputs from the analysis. Efficient Net Capex and unit costs are assessed by the analysis process and are indicated.

Reinforcement Mains

Analysis Summary – Reinforcement Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Actual gross expenditure including overheads	6.7	3.8	2.4	2.6	5.5
Efficiency adjustments to gross expenditure	-0.2	-0.1	-0.1	-0.1	-0.2
Adjusted gross expenditure including overheads	6.5	3.7	2.3	2.6	5.3
Contributions	0.0	0.0	0.0	0.0	0.0
Actual Net Capex	6.7	3.8	2.4	2.6	5.5
Adjusted Net Capex	6.5	3.7	2.3	2.6	5.3
Adjustments for under-recovery of contributions	0.0	0.0	0.0	0.0	0.0
Efficient Net Capex	6.5	3.7	2.3	2.6	5.3
Actual Volume – km	27	21	13	15	30
Efficient Unit cost - £/m	245.2	174.1	180.7	171.4	177.4

Table 48

Analysis Summary – Reinforcement Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Reported Net Investment	6.7	3.8	2.4	2.6	5.5
Wasteful/Unnecessary Expenditure	0.2	0.1	0.1	0.1	0.2
Allowed Workload	6.1	3.7	2.3	2.6	3.8
Additional Workload	0.4	0.0	0.0	0.0	1.5
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0

Table 49

Governors

Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Actual gross expenditure including overheads	1.7	1.4	1.6	0.8	2.2
Efficiency adjustments to gross expenditure	-0.1	-0.1	-0.0	-0.0	-0.0
Adjusted gross expenditure including overheads	1.7	1.4	1.6	0.7	2.1
Contributions	0.1	0.0	0.0	0.0	0.0
Actual Net Capex	1.7	1.4	1.6	0.8	2.2
Adjusted Net Capex	1.6	1.4	1.6	0.7	2.1
Adjustments for under-recovery of contributions	0.0	0.0	0.0	0.0	0.0
Efficient Net Capex	1.6	1.4	1.6	0.7	2.1
Actual Volume – No.	16	18	19	9	26
Efficient Unit cost - £/unit	104.8	76.6	83.8	85.0	84.0

Table 50

Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Reported Net Investment	1.7	1.4	1.6	0.8	2.2
Wasteful/Unnecessary Expenditure	0.1	0.1	0.0	0.0	0.0
Allowed Workload	1.6	1.4	1.6	0.7	2.1
Additional Workload	0.0	0.0	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0

Table 51

5.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

5.4.4.1 Analysis Process

The efficiency analysis process detailed in Section 5.3.3 is applied to assess efficient/adjusted unit costs. We recommend that forecast expenditure for 2007/08 reflects the historic efficient unit cost trend and we have adjusted the reported forecasts on this basis.

5.4.4.2 Workload Trend

Reinforcement Mains

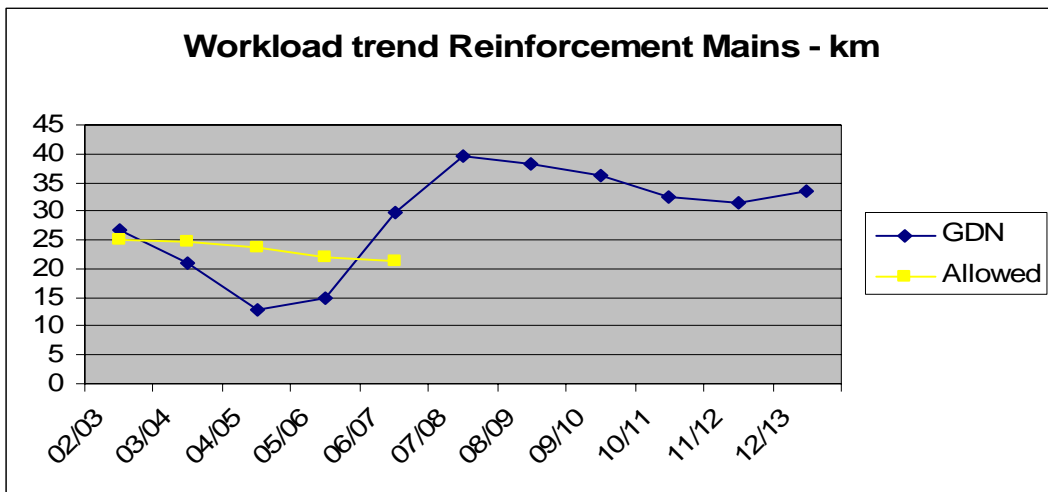


Figure 22

The significant increase in reinforcement mains workload in 2006/07 continues into 2007/08 and is substantially associated with the larger pipe diameters. There is one project reported at £0.75m. Scotland has not provided any explanation for the increase.

We presume that the work is associated with load growth/security of supply and necessary therefore.

Governors

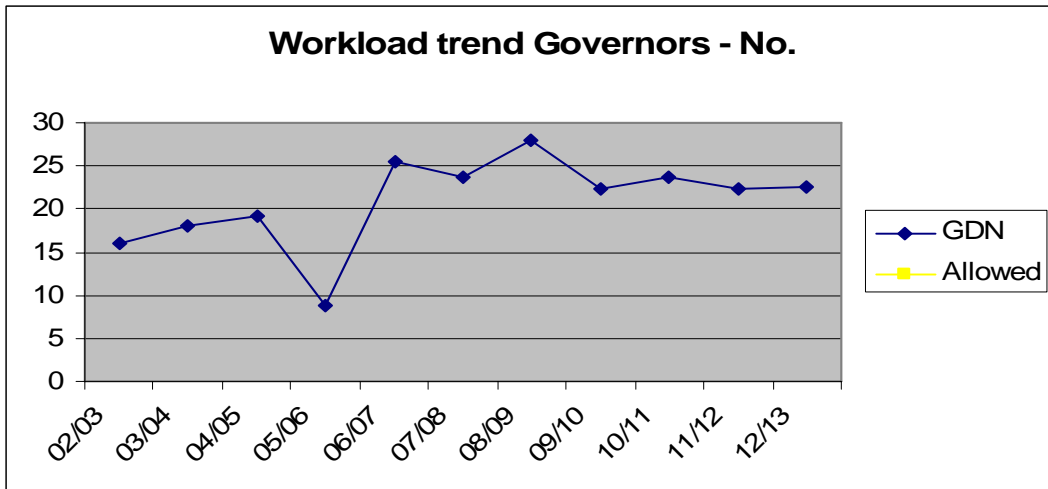


Figure 23

Governors expenditure is also high in 2007/08, presumably associated with reinforcement as the bias is towards the growth category.

5.4.4.3 Assessment of Forecast Capex

We have made no adjustments to the workload forecasts.

Reinforcement Mains

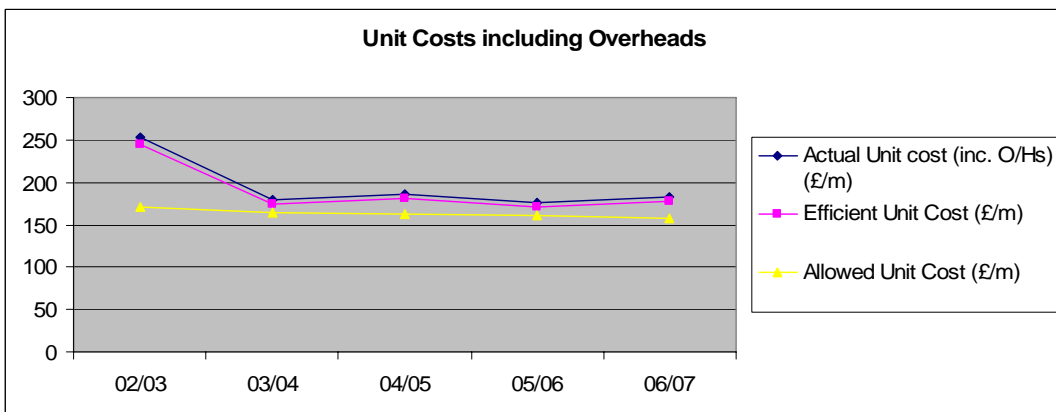


Figure 24

We recommend that forecast expenditure is based on the historic efficient unit cost trend. The exceptional high unit cost for 2002/03 is justified by the workload balance for that year and is discounted in terms of the overall trend.

On this basis the forecast unit cost inclusive of overheads for 2007/08 will be in the range £170/m to £190/m. The mid point unit cost of £180/m applied to the forecast workload at 39.5km results in an indicative 2007/08 expenditure forecast of £7.1m, including overheads, for reinforcement mains. Compared to the reported forecast at £7.6m, the variance is -£0.5m.

Governors

No issues have been identified regarding Scotland's forecast at £2.2m and we recommend that this be accepted without adjustment.

5.4.4.4 Recommendations

- We recommend that no adjustment is applied to the forecast workloads for reinforcement mains and governors.
- We recommend that Scotland's forecast expenditure for governors activities be accepted at £2.2m.
- Our recommendations regarding Gross Capex forecasts are summarised below

Summary – Reinforcement mains & Governors		
Forecast 2007/08		
All figures £m 2005/06 Prices		
	Reinforcement Mains	Governors
Reported Gross Investment Forecast	7.6	2.2
Ofgem Adjusted Gross Investment Forecast	7.1	2.2

Table 52

5.5 FORECAST TRENDS (2002 TO 2013)

5.5.1 HIGH LEVEL TREND

Reinforcement Mains

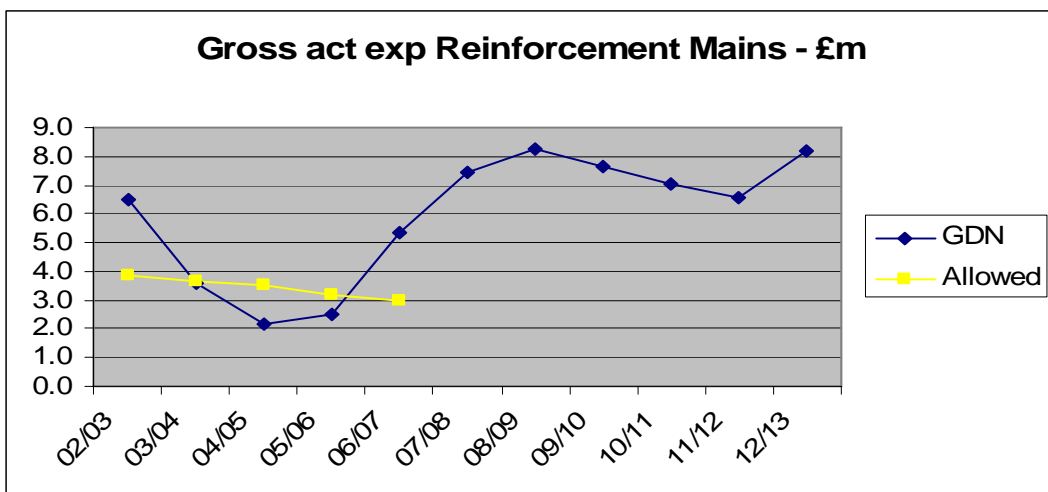


Figure 25

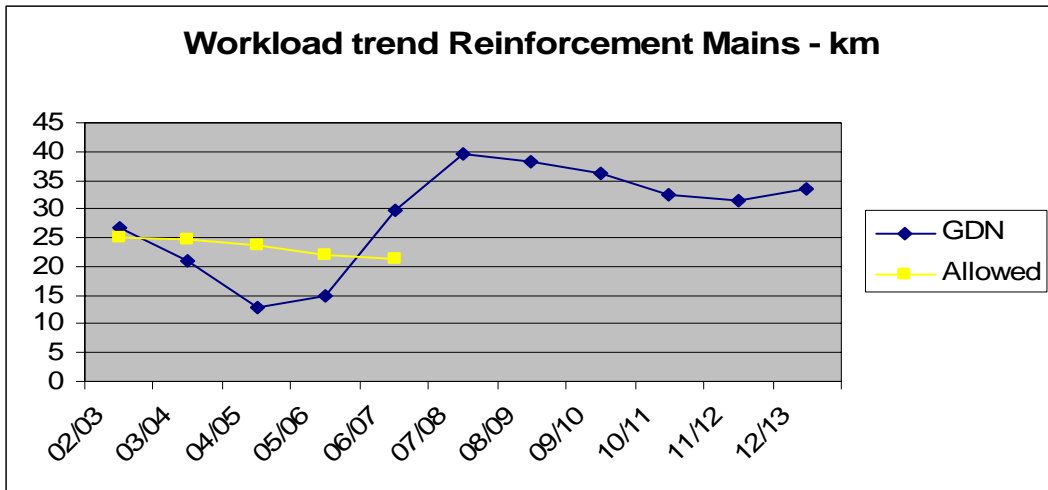


Figure 26

Governors

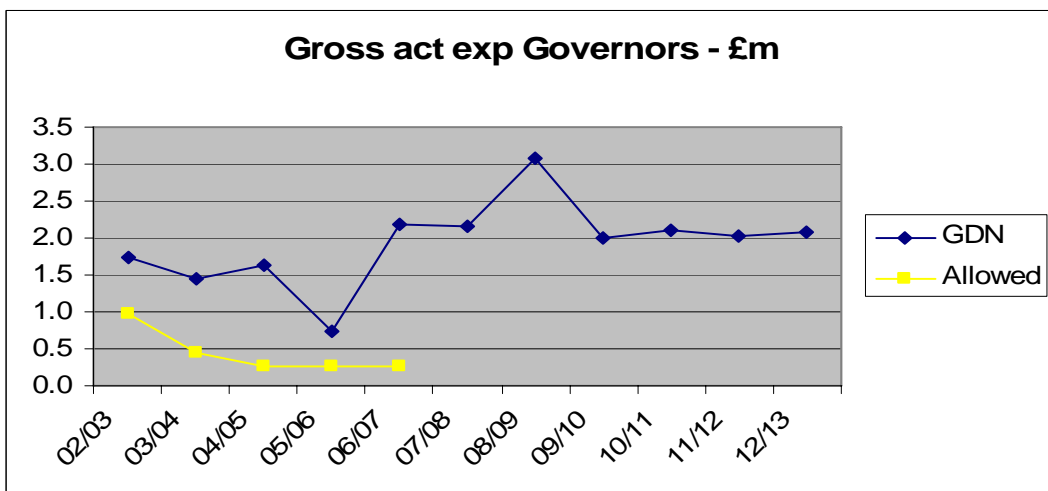


Figure 27

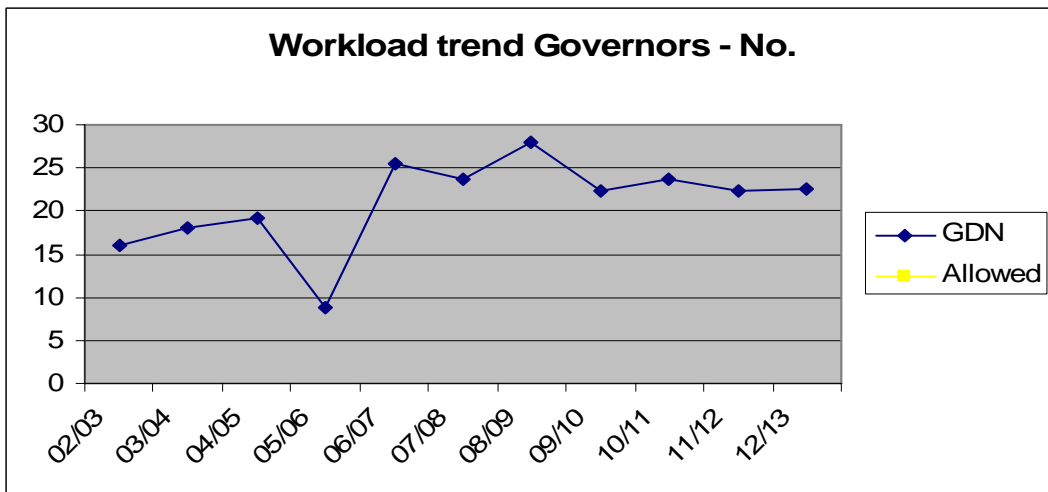


Figure 28

5.5.2 COMMENTS ON TREND

5.5.2.1 Reinforcement Mains

The reinforcement mains workload projection continues at a high level from 2007/08 to 2012/13. This matter will be re-visited under the main review.

Expenditure follows the workload trend and no issues have been identified.

5.5.2.2 Governors

The governors workload projection continues at a high level from 2007/08 to 2012/13. This matter will be re-visited under the main review.

Expenditure follows the workload trend and no issues have been identified.

6 OTHER OPERATIONAL CAPEX

6.1 SUMMARY OF FINDINGS

This section considers the Other Operational Capex in the following two areas;

- i) Plant & Equipment
- ii) Land & Buildings

6.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	27.1	4.0	31.1
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Ofgem Adjusted Net Investment	27.1	4.0	31.1

Table 53

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Review of processes to monitor and control expenditure & projects.
- Procurement policies and procedures.
- Trend analysis.
- No detailed analysis was possible for Land & Building due to lack of data

Key Issues

- Plant & Equipment expenditure does not include any allocation to Leakage Management P&E.
- The expenditure on land and buildings looks modest.

Categorisation of Incurred Expenditure

- No wasteful or unnecessary expenditure has been identified and the total expenditure recommended to be allowed

6.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

Overspend

- The whole category is underspent by £1.9m
- Land and buildings expenditure is exactly on allowance for this period.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Review of leakage management policies and procedures.
- Review of project management procedures, including examination of sample project documentation.
- Review of procurement policies and procedures, where provided
- No data was provided for Land and Buildings in this period

Key Issues

- BPQ commentary does not provide an explanation for variances with the allowances

Categorisation of Incurred Expenditure

- No wasteful or unnecessary expenditure has been identified and the total expenditure recommended to be allowed

Categorisation of Forecast Expenditure

- No adjustments have been identified and the total forecast expenditure recommended to be allowed
- For Land and Buildings, the 2007/08 allowances will need to be revisited to determine whether the proposal to purchase some offices and depots has been decided and whether the commensurate savings have been reflected as reduced Opex.

Net Capex All figures £m 2005/06 prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total		2007/08
Allowed Net Investment	1.0		1.0		1.1		1.1		1.1		5.2		
Total GDN Variance	0.3	29%	-0.5	-48%	-0.1	-9%	-0.3	-29%	2.5	238%	1.9	37%	
Reported Net Investment	1.3		0.5		1.0		0.8		3.6		7.1		9.6
Wasteful/Unnecessary Actual Expenditure	0.0		0.0		0.0						0.0		
Adjustments to Forecasts							0.0		0.0		0.0		0.0
Ofgem Adjusted Net Investment	1.3		0.5		1.0		0.8		3.6		7.1		9.6
Allowed Workload	1.3		0.5		1.0		0.8		1.6		5.2		
Additional Workload	0.0		0.0		0.0		0.0		2.0		2.0		
Deferrable/Unplanned but Predictable	0.0		0.0		0.0		0.0		0.0		0.0		

Table 54

6.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

6.2.1 REPORTED EXPENDITURE

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	27.1	4.0	31.1
Plant & Equipment	14.1	3.3	17.5
Tools, Transport and other Mains	8.1	0.3	8.5
Buildings	2.7	0.0	2.7
Land	2.2	0.3	2.6

Table 55

The major component of expenditure in this category is on Plant & Equipment at £17.5m and the information reported does not include any allocation to Leakage Management. No explanation for the expenditure has been provided and we are unable to comment further.

The expenditure on Tools, Transport and other mains included in this category has been moved to the Non-Operational expenditure for reporting after March 2002.

There are no details of the expenditure on Land or Buildings available from the BPQ submissions.

6.2.2 EFFICIENCY ANALYSIS

Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	27.1	4.0	31.1
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Ofgem Adjusted Net Investment	27.1	4.0	31.1

Table 56

Given the limited information available about the nature and breakdown of these costs the only analysis which has been carried out are; a review of processes to monitor and control expenditure & projects, procurement policies and procedures for Plant & Equipment. In addition a high level trend analysis of the levels of expenditure has been carried out.

No wasteful or unnecessary expenditure has been identified and the total expenditure recommended to be allowed.

6.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

6.3.1 HIGH LEVEL VARIANCES ANALYSIS

Other Operational Capex		2002/03	2003/04	2004/05	3 year Total
All figures £m 2005/06 Prices					
Plant & Equipment	Total Actual	1.3	0.5	0.6	2.4
	Allowance	0.9	0.9	1.0	2.8
	Variance	0.4	-0.4	-0.4	-0.4
Land & Buildings	Total Actual	0.0	0.0	0.4	0.4
	Allowance	0.1	0.1	0.1	0.3
	Variance	-0.1	-0.1	0.3	0.1
Total	Total Actual	1.3	0.5	1.0	2.8
	Allowance	1.0	1.0	1.1	3.1
	Variance	0.3	-0.5	-0.1	-0.3

Table 57

6.3.2 REASONS FOR VARIANCES

SGN has not provided any commentary on the reasons for the variances in respect of Other Operational Capex which was underspent by £0.3m.

6.3.3 EFFICIENCY ANALYSIS

Net Other Operational Capex	2002/03	2003/04	2004/05	3 Year Total
All figures £m 2005/06 Prices				
Reported Net Investment	1.3	0.5	1.0	2.8
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0	0.0
Plant & Equipment	0.0	0.0	0.0	0.0
Land & Buildings	0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	1.3	0.5	1.0	2.8
Allowed Workload	1.3	0.5	1.0	2.8
Additional Workload	0.0	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 58

6.3.3.1 Plant & Equipment

We have carried out various analyses to assess the efficiency of Plant & Equipment Gross Capex, including:

- Review of leakage management policies and procedures.
- Review of project management procedures, including examination of sample project documentation.
- Review of procurement policies and procedures

Policies and Procedures

SGN has not changed its policies and procedures regarding leakage management since acquiring the network. Current policy is aligned with NGG and established practice, and is considered to be satisfactory.

Project Appraisal Processes

Leakage management proposals are assessed utilising a comprehensive financial model and take into account relevant technical issues associated with the particular network and the preferred equipment. Project documents examined include investment options, risk assessment and details of the expected Opex cost benefits.

Proposals for bulk purchasing mobile plant and other equipment necessary for network maintenance and operations are submitted to the SGN Investment Committee for approval. Examination of proposal documents confirms that options are considered and expenditure is justified appropriately.

Procurement

Leakage management equipment and control systems are purchased from recognised specialist suppliers with limited scope for competitive pricing.

Examination of project documents indicates that bulk purchasing of mobile plant and other equipment necessary for network maintenance and operations is employed to minimise expenditure.

Summary

We conclude that Scotland's expenditure on Plant & Equipment is adequately controlled and managed to ensure investment efficiency.

6.3.3.2 Land and Buildings

Property Portfolio

Scotland's property portfolio comprises multiple operational sites which are mainly freehold and small, depots which may be housed on these operational sites and depots, stores and offices on sites which are leasehold.

Land Sales Proceeds

Scotland has not advised that it has sold any land or buildings since June 2005 and NGG advise that five sites have been sold in the Scotland network area between April 2002 and March 2005 for an aggregate net income of £45k. There is no indication that they plan to sell (or buy) any sites during the current review period.

Property Costs 2002 to 2005

Scotland has indicated a spend of £0.4m of direct property costs in the period. It is not stated what this was for. This exceeds their allowance by £0.1m but this reverses in the next two years.

Summary

There are no Land and Buildings issues in this period.

6.4 FORECAST EXPENDITURE

6.4.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

The tables below give the forecast expenditure, allowance and variance for each category of expenditure.

Other Operational Capex		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Plant & Equipment	Total Actual	1.3	0.5	0.6	0.8	3.6	6.7
	Allowance	0.9	0.9	1.0	1.0	1.0	4.8
	Variance	0.4	-0.4	-0.4	-0.2	2.6	1.9
Land & Buildings	Total Actual	0.0	0.0	0.4	0.0	0.0	0.4
	Allowance	0.1	0.1	0.1	0.1	0.1	0.4
	Variance	-0.1	-0.1	0.3	-0.1	-0.1	0.0
Total	Total Actual	1.3	0.5	1.0	0.8	3.6	7.1
	Allowance	1.0	1.0	1.1	1.1	1.1	5.2
	Variance	0.3	-0.5	-0.1	-0.3	2.5	1.9

Table 59

6.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

Actual Plant & Equipment expenditure is in excess of allowances for the 2 year period and the overall variance is 120%. SGN has not provided any commentary on the reason for the variances.

There is no variance for land and buildings in this period.

6.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

Net Other Operational Capex	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
All figures £m 2005/06 Prices							
GDN Forecast Net Investment	1.3	0.5	1.0	0.8	3.6	7.1	9.6
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plant & Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Land & Building	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ofgem Adjusted Forecast Net Investment	1.3	0.5	1.0	0.8	3.6	7.1	9.6
Allowed Workload	1.3	0.5	1.0	0.8	1.6	5.2	
Additional Workload	0.0	0.0	0.0	0.0	2.0	2.0	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 60

6.4.3.1 Plant & Equipment

SGN has indicated that development of an enhanced leakage control and pressure management strategy is in progress with the intention of adopting best practice from both of its' networks. We presume that the forecast expenditure of £0.8m against Leakage Management P&E in 2006/07 is associated with the outcome from this strategy review.

SGN has not provided an explanation for the significant increase in forecast expenditure to £3.6m in 2006/07.

6.4.3.2 Land & Buildings

There are no Land and Buildings issues in this period.

6.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

Other Net Capex		2007/08
All figures £m 2005/06 Prices		
Plant & Equipment		2.5
Land & Buildings		7.2
Total		9.6

Table 61

6.4.4.1 Plant & Equipment

The Plant & Equipment forecast at £2.5m is less than 2006/07 (£3.6m) but remains high compared to historic levels of the order of £1.0m. Expenditure is substantially allocated to Other P & E Projects <£0.5m. We consider this level of expenditure to be reasonable but no explanation has been provided and we are unable to comment further.

6.4.4.2 Land & Buildings

There is a forecast spend of £7.2m Capex in 2007/08 on the 'possible' purchase (as against renting) of certain key buildings. Whilst this is a reasonable step to take, SGN has not yet decided and it is not known whether a commensurate saving is shown in the Opex costs. However, this expenditure is deemed allowable at this point.

Decontamination liabilities, which may occur regardless of current land sales, are not mentioned in the submission; these may become an issue for the main review following recent legislation.

6.5 FORECAST TRENDS (2002 TO 2013)

6.5.1 HIGH LEVEL TREND

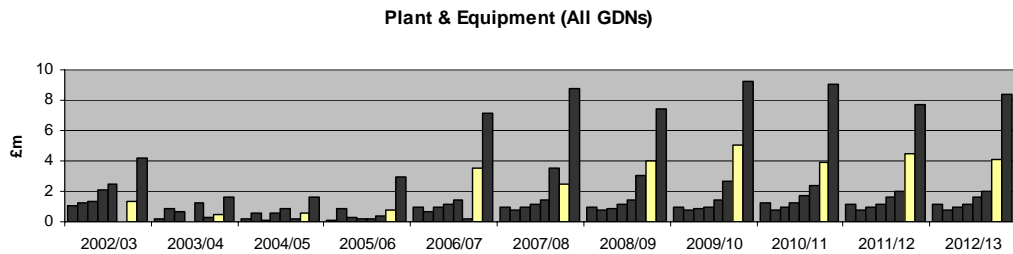


Figure 29

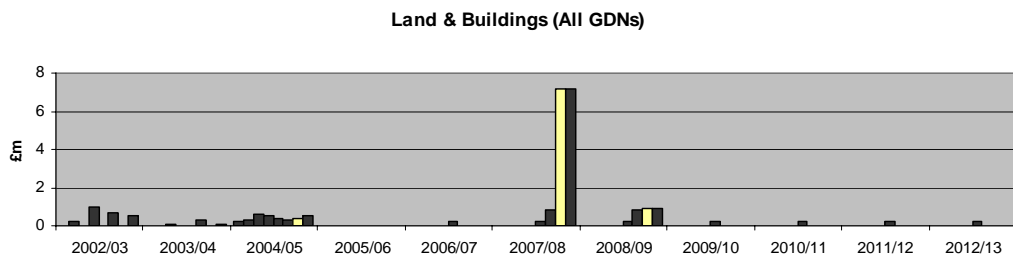


Figure 30

6.5.2 COMMENTS ON TREND

6.5.2.1 **Plant & Equipment**

Expenditure is forecast to remain high compared to historic levels. SGN has not provided an explanation and we recommend that this matter is re-visited under the 5 year PCR.

6.5.2.2 **Land & Buildings**

The possible purchase of currently rented buildings referred to above in 2007/08 flows through into 2008/09. The same comment applies. After 2008/09, no expenditure is proposed.

7 NON-OPERATIONAL CAPEX

7.1 SUMMARY OF FINDINGS

This section covers all remaining Capex not already covered elsewhere in this review. This section considers the Non Operation Capex in five areas;

- i) Non-Operational Capex (Direct)
- ii) System Operation
- iii) IS
- iv) xoserve
- v) Other Non-Operational Capex (Allocated).

7.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

Non Operational Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	92.7	13.6	106.3
Wasteful/Unnecessary Expenditure	6.6	4.4	11.0
Ofgem Adjusted Net Investment	86.1	9.2	95.3

Table 62

The Capex summary figures are given in the table above. These show the starting Reported Net Investment from the last control, the Reported Net Investment as requested by SGN and finally PB Power's initial recommendation for Ofgem's adjusted Net Investment

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Review of processes to monitor and control expenditure & projects.
- Review of Large IS & System Control Projects

Key Issues

- Ulysses turnkey contract with ██████ was terminated due to serious failings
- Quarterback programme incurred excessive initial investigation costs

Categorisation of Incurred Expenditure

- £6.5m of Ulysses expenditure was considered inefficient
- £4.5m of Quarterback expenditure was considered wasteful

7.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

Overspend

- There is a total underspend of £12.1m

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency taking into account.

- Review of processes to monitor and control expenditure & projects.
- Review of Large IS & System Control Projects
- Review of phasing on Vehicle expenditure
- Procurement policies and procedures.

Key Issues

- Large projects (Ulysses & Quarterback) have been associated with inefficient spend
- GEMINI costs have been incorrectly charged via Transco transaction model to GDNs
- BPQ commentary mainly provides commentary on overspends and does not provide an explanation for underspends with the allowances
- SGN are planning to buy-in all IS services to the future, hence they are not forecasting future capital expenditure

Categorisation of Incurred Expenditure

- £1.2m of Ulysses expenditure has been assessed as inefficient
- £0.3m of Quarterback programme cost has been assessed as inefficient

Categorisation of Forecast Expenditure

- £1.1m has not been allowed for 2007/08 which is believed to be for SOMSA exit

Non Operational Net Capex All figures £m 2005/06 prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total	2007/08
Allowed Net Investment	7.3		6.8		4.4		5.0		4.3		27.9	
Total GDN Variance	-3.6	-49%	-1.1	-16%	0.5	11%	-4.3	-85%	-3.6	-83%	-12.1	-43%
Reported Net Investment	3.8		5.7		4.9		0.8		0.7		15.9	7.1
Wasteful/Unnecessary Actual Expenditure	0.7		0.5		0.3						1.5	
Adjustments to Forecasts							0.0		0.0		0.0	1.1
Ofgem Adjusted Net Investment	3.0		5.2		4.6		0.8		0.7		14.3	6.0
Allowed Workload	3.0		5.2		4.6		0.8		0.7		14.3	
Additional Workload	0.0		0.0		0.0		0.0		0.0		0.0	
Deferrable/Unplanned but Predictable	0.0		0.0		0.0		0.0		0.0		0.0	

Table 63

7.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

7.2.1 REPORTED EXPENDITURE

Non Operational Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Reported Net Investment	92.7	13.6	106.3
Other	10.5	2.1	12.6
Telecoms, Office	9.9	2.2	12.1
Vehicles	42.2	0.0	42.2
IS (Distribution Costs only)	30.1	9.3	39.5

Table 64

7.2.1.1 Vehicles

Vehicles accounts for largest element of expenditure for this period. The large expenditure on vehicles in 2001 would reflect a five to seven year replacement of vehicles after the formation of Transco in 1994. No detailed explanation has been provided on this expenditure although commentary in some GDN submissions has suggested that they are attempted to phase future expenditure on vehicles away from concentrated peaks of expenditure.

7.2.1.2 System Operation

The Ulysses project was approved in 1999 as a turnkey project to undertake the complete replacement of Transco's System Operation's systems support suite. This included:

- i) Telemetry Outstations
- ii) Communications network (for telemetry purposes)
- iii) Control Systems (Both Transmission & Distribution)
- iv) Decision Support Tools
- v) Management Information

The total approved sum for the project was £70.4m, all Capex expenditure.

At the time of the last price review the Ulysses project was experiencing contractual difficulties between Transco and the main supplier [REDACTED] and it was clear in 2001 that the project would not deliver all of the components as originally specified in the approval,

We have had difficulty obtaining a definitive statement from NGG of the total project costs phased between January 2000 and March 2006. Together with TPA Solutions we have used the best costs available as the basis for our review. This review concludes that the total project expenditure in 2005/06 prices was £145.1m, of which £77.6m was the distribution element.

Our review concludes that there was inefficient expenditure associated with; the requirement to terminate the original [REDACTED] supply turnkey supply contract, abortive costs associated with a replacement distribution control system, telemetry design and site preparation costs and poor project management. These conclusions are made in full in Appendix 4.

7.2.1.3 IS

The figures provided by NGG for the 15 months to April 2002 were combined transmission and distribution figures. They also provided a total Distribution allocation of these costs. We have estimated the split between projects to provide comparisons. The projects have been split between Systems and Infrastructure projects.

IS Infrastructure Capex All Figures £m 2005/06 Prices		PB Power Estimates		
		2001	2002 Qtr1	Total
Systems Projects	Quarterback (QB)	2.8	4.5	7.3
	MINE	0.6	0.0	0.6
	Total	3.3	4.5	7.8
Infrastructure Projects	Servers	6.9	2.3	9.2
	Desktop	10.6	0.7	11.3
	Data Centre Storage	3.1	0.0	3.1
	Telecoms	1.0	0.0	1.0
	Office Equipment	2.3	0.9	3.2
	Email Upgrades	1.7	0.0	1.7
	SAP	1.2	0.7	1.9
	Other	0.0	0.3	0.3
	Total	26.8	4.8	31.6
Total		30.1	9.3	39.4

Table 65

7.2.2 EFFICIENCY ANALYSIS

Non Operational Net Capex All figures £m 2005/06 Prices	2001	Q1 2002	15 month Total
Wasteful/Unnecessary Expenditure	6.6	4.4	11.0
System Operation	4.9	1.6	6.5
IS	1.7	2.8	4.5
Ofgem Adjusted Net Investment	86.1	9.2	95.3

Table 66

7.2.2.1 Systems Projects

The major element of expenditure is on the Quarterback Programme. We conclude that the expenditure incurred during this period was the initial investigations for the financial approval presented to the Lattice Executive in July 2002. We find the level of this expenditure

excessive for this element of work. We therefore believe that 50% to 75% (£3.5m to £5.5m) of this expenditure was wasteful.

7.2.2.2 Infrastructure Projects

We note that during the separation of Transco from the gas supply & servicing parts of BG plc between 1994 and 1996, Transco put in place new desktop and server installations. The large expenditure to replace this infrastructure during 2001 would appear to reflect a reasonable life for this equipment. We have found no evidence of wasteful or unnecessary expenditure in this area.

7.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

7.3.1 HIGH LEVEL VARIANCES ANALYSIS

Non-Operational Net Capex		2002/03	2003/04	2004/05	3 year Total
All figures £m 2005/06 Prices					
Non-Operational Direct	Furniture and fittings	0.0	0.0	0.0	0.0
	Other Direct 4	-0.5	1.6	1.0	2.0
	Security	0.0	0.0	0.0	0.0
	Telecoms, Office	0.3	0.2	0.5	1.1
	Tools & Equipment	0.0	0.0	0.0	0.0
	Vehicles	0.9	0.0	0.1	0.9
	Total Actual	0.6	1.8	1.6	4.0
	Allowance	1.8	2.0	2.3	6.1
	Variance	-1.2	-0.2	-0.7	-2.2
System Operation	Total Actual	0.8	1.0	0.8	2.5
	Allowance	0.6	0.1	0.3	0.9
	Variance	0.2	0.9	0.5	1.6
IS	Total Actual	1.8	3.0	2.6	7.4
	Allowance	4.7	4.6	1.7	11.0
	Variance	-2.8	-1.6	0.8	-3.6
Xoserve ²	Total Actual	0.0	0.0	0.0	0.0
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.0	0.0
Non-Operational (Allocated)	Total Actual	0.5	0.0	0.0	0.5
	Allowance	0.3	0.1	0.2	0.6
	Variance	0.3	-0.1	-0.2	0.0
Total	Total Actual	3.8	5.7	4.9	14.4
	Allowance	7.3	6.8	4.4	18.6
	Variance	-3.6	-1.1	0.5	-4.2

Table 67

² Note Xoserve was not set-up until April 2005

7.3.2 REASONS FOR VARIANCES

SGN have not provided any specific reason for variance largely because most areas in Non-Operation expenditure are underspent.

7.3.3 EFFICIENCY ANALYSIS

Non Operational Net Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	3.8	5.7	4.9	14.4
Wasteful/Unnecessary Expenditure	0.7	0.5	0.3	1.5
Non-Operational Direct	0.0	0.0	0.0	0.0
System Operation	0.6	0.3	0.3	1.2
IS	0.1	0.2	0.1	0.3
Xoserve	0.0	0.0	0.0	0.0
Non-Operational Allocated	0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	3.0	5.2	4.6	12.9
Allowed Workload	3.0	5.2	4.6	12.9
Additional Workload	0.0	0.0	0.0	0.0
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 68

Allocation of efficient overspend IS and System Operation costs into categories of expenditure (additional work or deferrable/reasonably predictable).

We have looked at the full 5 year allowance and where the phasing of the actual expenditure is out of line with the allowance the total allowed work has been adjusted to allow the GDN the full benefit of the total allowed expenditure for the full 5 year period. Where expenditure is over this total 5 year level we have to form a judgement as to whether the expenditure falls into the category additional work or deferrable/reasonably predictable work.

We have found very few situations where we believe the work should have been deferred as in most cases the work has an NPV and delivers (or intends to deliver) benefits. In the examples where we have classified expenditure as deferrable we have made the appropriate comments.

Unless there are exceptional circumstances we have not regarded the overspending of an IS or System Operation project as predictable. Further, particularly in the case of the Ulysses project, when expenditure has been disallowed as inefficient spending we have treated any subsequent expenditure to deliver the same functionality as additional work, so as not to penalise the Network twice. Should any expenditure which has been disallowed be subsequently re-classified, a review of the overspend should also be undertaken at the same time.

We have not discovered any material IS project which we believe had no forecast in the allowance and which should have been reasonably predicted.

7.3.3.1 Non-Operational Capex (Direct)

SGN have provided no specific commentary on Non-Operational (Direct) expenditure.

The Network's vehicle expenditure is demonstrably below the national average and this means a higher level of forecast expenditure on vehicles than during the period 2002/03-2004/05.

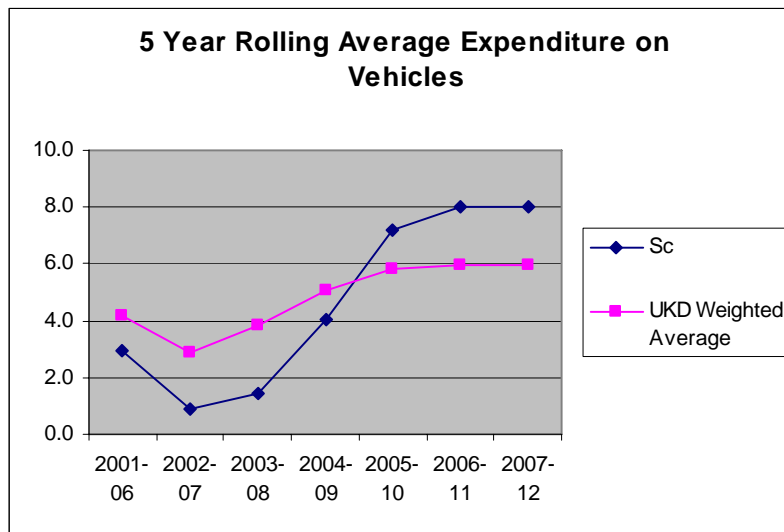


Figure 31

7.3.3.2 System Operation

We understand that the expenditure on System Operation during this period was associated with the Ulysses project. As a result of the management of the Ulysses project as discussed in section 7.2.1.2 we have concluded that during the period April 2002 to March 2005 Scotland's share of the inefficient spends was £1.2m.

7.3.3.3 IS

Until the sale of the network occurred in June 2005 IS services to the network were centrally provided by NGG. Appendix 4 gives the background to our analysis of the IS provision for this period.

The main conclusions drawn from our analysis are that NGG have an IS project control system in place which does provide an adequate element of control particularly for small projects. However, the larger projects (Ulysses & Quarterback) seem to suffer initial project under-estimates and large overspends to complete the project. We believe a major reason is the lack of a full understanding of the project scope and complexity at the outset.

There were significant delays between the time that potential for overspends were identified and the formal re-sanction being obtained. These delays reduced the options for the Executive to cancel or amend projects as expenditure was already committed.

A benchmarking exercise has been carried out by Compass for the provision of IS services to the whole NGG group for the financial year 2004/05.

The report concludes: *"The sourcing strategy of NG clearly delivers benefits in terms of reduced costs to the organisation. As with any organisation there are areas where performance could be improved, but the overall conclusion is that NG is doing the majority of things well. Compass considers that both the CSC contract and the selective sourcing of the ADSM services are consistent with leading practice in the sourcing of IT services."*

Based on the compass report we conclude that in general the provision of IS services for the period to March 2005 does not have systemic inefficiency associated with IS provision.

We do, however, believe that in the large Quarterback Programme/Project (QB) there is inefficient expenditure. QB costs have been reported in both the Opex and Capex regulatory accounts. A total £51.3 million of software development costs for QB was classed as Opex in the regulatory accounts but has been reclassified as Capex for the purposes of the RAV roll forwards tables in the BPQ submission. In reviewing the project we have taken the total project costs into account. However, as this additional "Capex" has not been included in the non-operational Capex tables in the BPQ it does not form part of PB Power's adjustments to costs.

We have concluded that in outturn prices the project in total spent £76.8m, comprising £51.3m Opex and £25.5m Capex (charged to distribution). We believe there is inefficient expenditure included within this sum of between £8m and £26m. Taking the midpoint of this estimate, uplifting to 2005/06 prices and taking a pro-rata figure for just the reported Capex elements; we have deemed a total of £3.4m to have been inefficiently spent across all GDNs. The total value for the Sc network on a percentage basis is therefore £0.3m.

Whilst we believe it is possible that further inefficiencies have occurred within other projects undertaken during the period we have not found sufficient reason to apply percentage inefficiencies across all projects.

7.3.3.4 xoserve

The company xoserve was not formed until May 2005. Therefore there was no xoserve expenditure during this period. Prior to xoserve being created the activities were carried out as part of NGG normal operations.

7.3.3.5 Non-Operational Allocated

There is no expenditure in this category

7.4 FORECAST EXPENDITURE

7.4.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

Non-Operational Net Capex		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
All figures £m 2005/06 Prices							
Non-Operational Direct	Furniture and fittings	0.0	0.0	0.0	0.2	0.0	0.2
	Other Direct 4	-0.5	1.6	1.0	0.1	0.0	2.0
	Security	0.0	0.0	0.0	0.0	0.0	0.0
	Telecoms, Office	0.3	0.2	0.5	0.2	0.4	1.6
	Tools & Equipment	0.0	0.0	0.0	0.1	0.2	0.2
	Vehicles	0.9	0.0	0.1	0.0	0.0	0.9
	Total Actual	0.6	1.8	1.6	0.5	0.6	5.0
	Allowance	1.8	2.0	2.3	2.2	1.9	10.2
	Variance	-1.2	-0.2	-0.7	-1.7	-1.3	-5.2
System Operation	Total Actual	0.8	1.0	0.8	0.0	0.1	2.6
	Allowance	0.6	0.1	0.3	0.7	0.5	2.1
	Variance	0.2	0.9	0.5	-0.7	-0.4	0.5
IS	Total Actual	1.8	3.0	2.6	0.3	0.0	7.7
	Allowance	4.7	4.6	1.7	2.0	1.8	14.8
	Variance	-2.8	-1.6	0.8	-1.7	-1.8	-7.1
xoserve ³	Total Actual	0.0	0.0	0.0	0.0	0.0	0.0
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.0	0.0	0.0	0.0
Non-Operational (Allocated)	Total Actual	0.5	0.0	0.0	0.0	0.0	0.5
	Allowance	0.3	0.1	0.2	0.1	0.1	0.8
	Variance	0.3	-0.1	-0.2	-0.1	-0.1	-0.3
Total	Total Actual	3.8	5.7	4.9	0.8	0.7	15.9
	Allowance	7.3	6.8	4.4	5.0	4.3	27.9
	Variance	-3.6	-1.1	0.5	-4.3	-3.6	-12.1

Table 69

7.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

SGN are forecasting to be underspent in every area of Non-Operational expenditure. The largest single reason for underspend being in IS. SGN are planning to buy-in all IS services and therefore have no Capital expenditure provisions.

³ Note Xoserve was not set-up until April 2005

7.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

Non Operational Net Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
GDN Forecast Net Investment	3.8	5.7	4.9	0.8	0.7	15.9	7.1
Adjustments	0.7	0.5	0.3	0.0	0.0	1.5	1.1
Non-Operational Direct	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Operation	0.6	0.3	0.3	0.0	0.0	1.2	1.1
IS	0.1	0.2	0.1	0.0	0.0	0.3	0.0
Xoserve	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Operational Allocated	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ofgem Adjusted Forecast Net Investment	3.0	5.2	4.6	0.8	0.7	14.3	6.0
Allowed Workload	3.0	5.2	4.6	0.8	0.7	14.3	
Additional Workload	0.0	0.0	0.0	0.0	0.0	0.0	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 70

7.4.3.1 Non-Operational Direct

The expenditure is forecast below allowances for both years.

7.4.3.2 System Operation

During 2005/06 expenditure was associated with the installation of telemetry by the Ulysses project. As a result of the management of the Ulysses project as discussed in section 7.2.1.2 we have concluded that during this year there was no additional inefficient spend in Scotland.

We assume the forecast expenditure for 2006/07 is associated with the replacement of GTMS system. The forecast seems to be lower than the latest estimates for the project. therefore not made any adjustments to these forecasts.

7.4.3.3 IS

Prior to the network sales, the majority of IS expenditure within Transco was associated with the central development of software applications and infrastructure. As part of the sales process the systems supporting the Network were split between those labelled the “back office” systems and those labelled “front office” systems. Essentially the back office systems are those required to run any business such as financial accounting, payroll and general procurement. The front office systems are those systems which have over the years been created or procured by Transco for the specific purpose of managing activities associated with running a gas distribution business.

In order to demonstrate the operation of a new standalone business, the back office systems were required to be put in place at the time of the sale process. Following the sale, the front office systems continued to be provided by National Grid to the sold networks on a contractual basis, under the Front Office Managed Service Agreement (FOMSA). Whilst the FOMSA systems continued past the network sales strong contractual terms required that the new owners migrated away from these services by no more than 18 months after the sale. SGN has commissioned a programme of activities aimed at migrating from the FOMSA suite of systems. All of these systems will be provided under a managed services agreement from SSE. There are therefore no Capex forecasts for future years.

7.4.3.4 xoserve

The company xoserve provides transactional services, information system (IS) support and change management on behalf of the GDNs and the NTS. The company was formed in May 2005, The primary recipients of xoserve's services are the networks customers, the gas shippers. SGN has a 17.02% shareholding in xoserve. During the period to March 2007 xoserve will be preparing detailed expenditure plans to replace the technology which their systems are running. This technology refresh, as it is termed, is aimed at minimising the possibility of serious performance and storage issues impacting the competitive gas market. We consider these plans to be necessary and appropriate.

We note that SGN have not forecast any Capex associated with xoserve.

7.4.3.5 Non-Operational Allocated

There is no forecast expenditure in this area.

7.4.3.6 Summary

The total 5 year Non-Operational Capex expenditure shows a large underspend of £12.1m against the allowances.

7.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

Non-Operational Net Capex		2007/08
All figures £m 2005/06 Prices		
Non-Operational Capex Other (Direct)		3.1
System Operation		4.0
IS		0.0
Xoserve		0.0
Non-Operational Capex Other (Allocated)		0.0
Total		7.1

Table 71

We recommend that for 2007/08 the categories of Non-Operational Direct and Allocated (other) are combined into a single category Non Operational (Other)

7.4.4.1 Non-Operational (Other)

SGN plan to purchase vehicles in 2007/08 which starts to correct the underspend when compared with the national average see section 7.3.3.1.

We believe these forecast are appropriate and recommend they are allowed under adjusted.

7.4.4.2 System Operation

We assume the forecast expenditure for 2007/08 is associated with the replacement of GTMS system together with SOMSA exit costs. We consider GTMS replacement costs to be allowable. However, we understand that SOMSA exit costs are sales related and are not allowable. We have therefore reduced the forecast by £1.1m.

7.4.4.3 IS

There is no expenditure forecast for IS.

7.4.4.4 xoserve

We note that SGN have not forecast any Capex associated with xoserve.

7.5 **FORECAST TRENDS (2002 TO 2013)**

7.5.1 **HIGH LEVEL TREND**

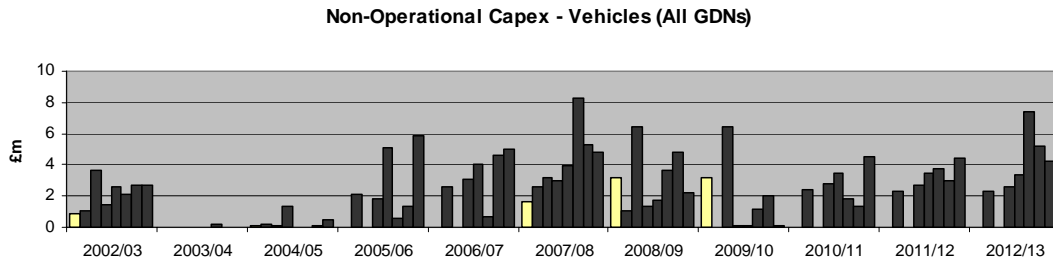


Figure 32

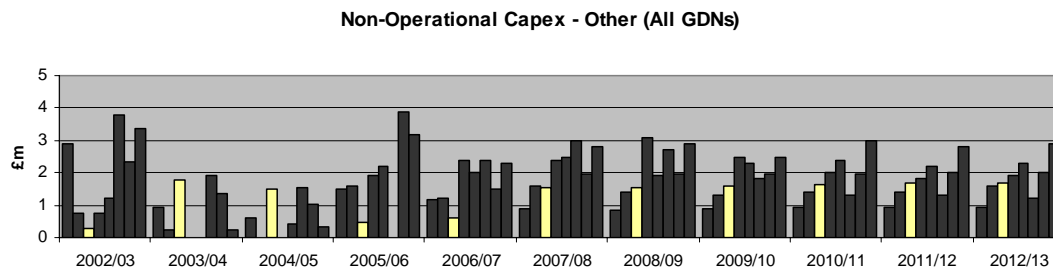


Figure 33

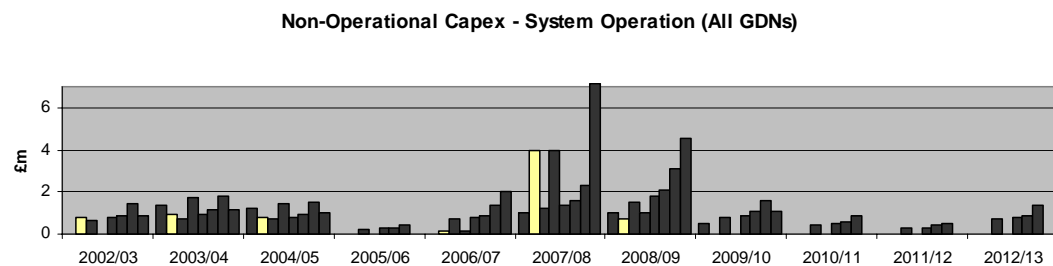


Figure 34

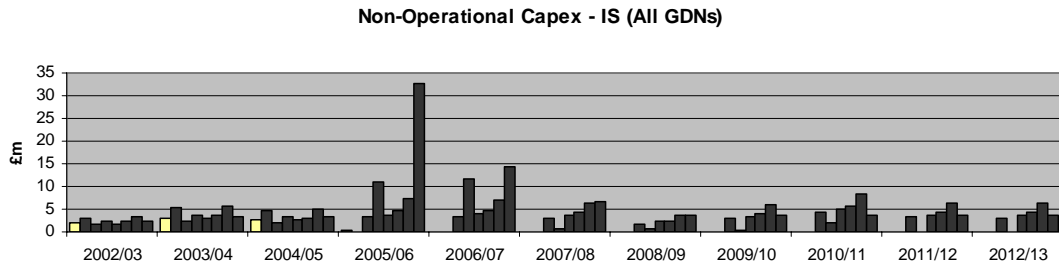


Figure 35

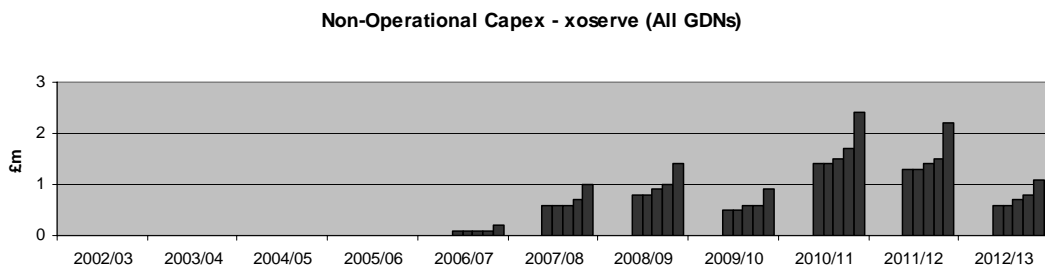


Figure 36

7.5.2 COMMENTS ON TREND

7.5.2.1 Vehicles

The Network is the third highest in plans for vehicle expenditure of the full period. It is recommended that vehicles are considered as a specific category in the 5 year review.

7.5.2.2 Non-Operational Other

The following table provides visibility of the breakdown of the Non-Operational “Other” category over the period 2002-2013.

Non-Operational Other Capex Breakdown of Items <small>All figures £m 2005/06 Prices</small>	2002/03 - 2006/07	2007/08 - 2012/13	Total
Furniture and fittings	0.2	0.0	0.2
Other charges<£0.5m	0.5	0.0	0.5
Other Direct 4	2.0	0.0	2.0
Telecoms, Office	1.6	5.3	6.9
Tools & Equipment	0.2	4.4	4.6
Furniture and fittings	0.2	0.0	0.2
Other charges<£0.5m	0.5	0.0	0.5
Totals	4.6	9.7	14.3

Table 72

7.5.2.3 System Operation

The forecast reflect a peak of expenditure around 2007/08 associated with the planned replacement of the GTMS system.

7.5.2.4 IS

SGN are not forecasting any Capex expenditure on IS past 2005/06.

7.5.2.5 xoserve

We note that SGN have not forecast any Capex associated with xoserve.

8 MAINS AND SERVICES REPEX

8.1 SUMMARY OF FINDINGS

8.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

The period was unusual in that Transco, (under an Improvement Order from the HSE) was engaged on the medium pressure ductile iron replacement programme to be completed by the end of 2002. Mains within the programme included larger diameter pipes in urban situations.

Mains unit costs increased by about 30% as Transco ramped-up production from around 1750km of mostly small diameter main (2000) to 2000km (2001) including about 1000km of larger diameter ductile iron. Cost increases reflect the nature of the work and the urgency to complete the programme on time.

Domestic services costs, largely unaffected by the MPDI programme, remained steady. The volume of non-domestic service replacement increased with little change in cost over the period.

Overall, costs are consistent with the reported workload.

8.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

Replacement Mains and Services

Net Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total						
Allowed Net Investment	31.4	27.7	35.2	35.3	33.3	163.0						
Total GDN Variance	-2.2	-7%	4.2	+15%	6.6	+19%	10.3	+29%	23.0	+69%	41.9	+26%
Reported Net Investment	29.2	31.9	41.9	45.6	56.3	204.9						

Table 73

8.1.2.1 Mains Workload

Accepted GDN Programme

Scotland network is following a programme approved by the HSE. The programme started in 2002 and aims to de-commission all iron mains within 30m of property over the 30 years to 2032. The network is currently raising de-commissioning rates to 270km of iron mains/year to achieve this. The need to replace other mains (usually steel) as part of iron mains projects raises the total level of de-commissioning to 313km/yr from 2007/08.

HSE requirement was separately defined for Scotland as follows:

Iron Mains to be De-commissioned	2004/05	2005/06
HSE Requirement (km decommissioned)	227	250
GDN actual (Policy)	241	133*
GDN total decommissioned (includes some PE & protected steel; excludes re-chargeable mains relays.)	270	148*

Table 74

*There is under-reporting of 2005/06 abandonment; a report to the HSE at the end of Q3 indicates 221.3 km abandoned. 266km of replacement main was laid and it is likely that the GDN was near the allowance at the year end.

The programme for earlier years was agreed at national level. Scotland met/exceeded the HSE requirement, but also decommissioned a significant length of other associated main, mostly small diameter unprotected steel. At the time the Price Control was set, these associated mains were replaced on a condition basis, but a change to the Network's policy & procedures in October 2003 required unprotected steel mains ≤ 2 " to be routinely replaced as part of "risk" projects.

The volume of associated main has thus grown, and since the Network must comply with its Safety Case, and defined policies and procedures, such replacement is now unavoidable in so far as it is associated with the de-commissioning of iron mains under the HSE programme.

8.1.2.2 Services Workload

The services workload is in line with the allowance over five years.

8.1.2.3 Mains Costs

Reported mains costs are forecast to be above the allowance. A feature of the control is that the replacement mains price control allowance is re-calculated each year under the Supplementary Incentive Mechanism. This offers an incentive to the GDN for meeting or beating a forecast cost developed from the mains actually de-commissioned in year. Under the mechanism the GDN also bears half the cost any overspend.

The Supplementary Incentive Mechanism has caused the Network to secure its position on mains costs, which are depressed, at the expense of services costs.

The mains allowance (not re-calculated) will be exceeded by around £22m (18%) over the five years, after the re-allocation of costs from services.

8.1.2.4 Services Costs

Services costs are consistently high. Some of these costs, we believe, arise from mains and have thus been re-allocated. It is worth noting here that services unit costs are sensitive to any transfer from mains – at an average of one service every 10m of main, a reduction of £1.00/m in mains unit cost will add £10.00 to the service unit cost.

The services allowance (after reallocation of costs to mains) will be exceeded by around £20m (48%) over the five years.

8.1.2.5 Allowances

In forming a view on the efficient level of unit costs we have examined the assumptions made in the control and find that features within the mains and services allowances, (distorted by disaggregation) such as the EfV reduction (mains; -5% each year), the EPC reduction (mains and services; increasing reductions after 03/04 reaching -7.9% in 2006) and the effect of reducing real price effects (added in anticipation of costs rising above RPI during the “ramp-up” phase) combine to produce unit costs that are challenging for the Network in the current economic environment.

8.1.2.6 Completed Years

To address the distortion of mains and services costs, a proportion of services costs have been re-allocated to mains and the Supplementary Incentive Mechanism.

Adjustments are recommended in respect of direct and contract costs.

8.1.2.7 Future Years

Reallocations from services to mains continue to the end of 2006/07.

There is no reallocation in 2007/08, assuming the review of the Supplementary Incentive Mechanism and allowing a return to appropriate cost allocation.

There are continuing adjustments to services reflecting on-going contract and direct labour inefficiencies under the current arrangements. The 2007/08 adjustment reflects workload adjustments and cost savings required begin to close the gap with other, more efficient, GDNs.

8.1.2.8 Re-chargeable Diversions

For clarity re-chargeable diversions are omitted from the tables.

The net costs arising from this work are not material and we recommend that these are categorised as allowed workload.

Net Repex (excluding re-chargeable diversions) <small>All figures £m 2005/06 Prices</small>	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total	2007/08
Allowed Net Investment	31.4	27.7	35.2	35.3	33.3	163.0	
Total GDN Variance	-2.2 -7%	4.2 +15%	6.6 +19%	10.3 +29%	23.0 +69%	41.9 +26%	
Mains (as reported)	-4.5 -18%	0.2 +1%	0.1 +0%	1.6 +6%	8.5 +34%	5.9 +5%	
Services (as reported)	2.2 +35%	4.1 +51%	6.6 +72%	8.7 +94%	14.4 +177%	36.0 +88%	
Reported Net Investment	29.2	31.9	41.9	45.6	56.3	204.9	58.4
Total GDN Variance (after re-allocation by PB Power)	-2.2 -7%	4.2 +15%	6.6 +19%	10.3 +29%	23.0 +69%	41.9 +26%	
Mains (after re-allocation)	-2.8 -11%	2.6 +13%	3.3 +13%	5.5 +21%	13.6 +54%	22.4 +18%	
Services (after re-allocation)	0.5 +9%	1.6 +20%	3.3 +36%	4.8 +51%	9.3 +115%	19.5 +48%	
Restated Net Investment (after re-allocation)	29.2	31.9	41.9	45.6	56.3	204.9	58.4
Wasteful/Unnecessary Actual/Forecast Expenditure	0.2	0.3	0.4			0.9	
Adjustments to Actual/Forecast				0.5	0.7	1.2	7.3
Mains	0.0	0.0	0.0	0.0	0.0	0.0	4.1
Services	0.2	0.3	0.4	0.5	0.7	2.1	3.2
Ofgem Adjusted Net Investment	29.0	31.6	41.5	45.0	55.6	202.8	51.1
Mains	22.3	22.3	29.4	31.5	38.8	144.3	
Services	6.7	9.3	12.1	13.5	16.8	58.5	
Allowed Workload	6.7	7.4	11.4	13.4	14.8	53.8	
Additional Workload	0.0	1.7	0.5	0.0	2.0	4.2	
Deferrable/Unplanned but Predictable	0.0	0.2	0.1	0.1	0.0	0.4	

Table 75

8.2 BACKGROUND

The replacement of metallic mains and services is an essential part of SGN's strategy for controlling the risk arising from the network. The rate of replacement and the procedures associated with the selection of pipes and development of projects are regulated by the HSE using the Gas Safety (Management) Regulations and the Pipelines Safety Regulations to enforce its policy. Ofgem's role is to ensure that the GDN can fund the programme and that it is efficiently executed.

During the period under review HSE requirements and Transco policy and procedures have changed, and the key events are listed below.

Changes to HSE and other requirements

Time Line	
2000	HSE issues an Improvement Notice in September 2000 requiring 2360 km of MP DI main within 30m of premises to be de-commissioned by 31.12.2002.
2001	HSE publishes its Enforcement Policy for the replacement of iron gas mains. 91,000km of cast and ductile mains believed to be within 30m of premises. Note that the policy does not include steel mains or service pipes. Ofgem increases mains and services Repex allowances to accommodate the HSE requirement.
2002	Transco introduces T/PR/REP2 policy and procedure for replacement. REP2 requires steel services to be replaced irrespective of condition (previously PE clad steel services could be transferred if in satisfactory condition) and unprotected steel <=2" to be replaced in the course of routine replacement work. >2" steel subject to risk assessment. Previously these pipes replaced on a condition basis. Initial (20/70/10) policy introduced (supported by "Smallworld")
2003	Pipeline Safety Regulations amended to require GDN's to submit a replacement programme for approval. Physical survey reveals that actual population of iron mains was 101,000km at 01.04.02 requiring a 10% increase in production to complete the programme within 30 years. Transco submit an amended 20/70/10 policy (supported by MRDST) to HSE for approval. Agreed providing an equivalent amount of risk is removed from the system each year, and requiring an additional 10% of mains to be de-commissioned. HSE requires a minimum national rate of 3,500km/yr de-commissioned mains (an increase from 3,240km) from 06/07 to meet the 30 yr programme.
2004	Steel pipe included in the risk model.

Table 76

8.3 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

Workload and costs for the 15 months to March 2002 have been examined. The period was unusual in that Transco, (under an Improvement Order from the HSE) was engaged on the medium pressure ductile iron replacement programme to be completed by the end of 2002. Mains within the programme included larger diameter pipes in urban situations.

Mains unit costs increased by about 30% as Transco ramped-up de-commissioning from around 1750km of mostly small diameter main (2000) to 2000km (2001) including about 1000km of larger diameter ductile iron. Cost increases reflect the nature of the work (larger diameters, medium pressure, urban and often in main thoroughfares rather than side streets) and the urgency to complete the programme on time.

Domestic services costs, largely unaffected by the MPDI programme, remained steady. The volume of non-domestic service replacement increased with little change in cost over the period.

Overall, costs are consistent with the reported workload.

8.4 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

8.4.1 HIGH LEVEL VARIANCES ANALYSIS

8.4.1.1 Mains Volumes

Length of mains abandoned All figures km	2002/03	2003/04	2004/05
Ofgem Allowance	209.2	251.2	297.5
GDN Actual	266.0	250.0	269.0
Variance	56.8	-1.2	-28.5

Table 77

There is a significant variance in 2002/03 due to the effects of the national MPDI replacement programme.

A marginal underperformance in 2003/04 is followed by increasingly large variances in 2004/05 and 2005/06.

Over five years the GDN is expected to de-commission 111km (8%) less than the allowance.

8.4.1.2 Services Volumes

Services Replaced or Transferred	2002/03	2003/04	2004/05
Ofgem Allowance	17,234	20,461	31,775
GDN Actual	15,174	25,645	25,320
Variance	-2,060	5,184	-6,455

Table 78

There is a negative variance in 2002/03 due to the effects of the national MPDI replacement programme.

There are mixed variances from 2003/04 but overall the GDN is on target to meet the number of services jobs within the allowance.

8.4.1.1 Mains Costs

Mains Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Mains (as reported)	20.6	19.8	26.1	66.5
Re-allocation from Services	1.7	2.5	3.3	7.4
Total Mains	22.3	22.3	29.4	74.0
Allowance	25.1	19.6	26.1	70.8
Variance	-2.8	2.6	3.3	3.2

Table 79

The GDNs performance against the allowance has worsened over the period, starting with a negative variance (under-spend) but with significant positive variances in later years. Overall (and after re-allocation of services costs) the network is forecast to exceed the 5 year cap by approx. £22m (18%).

8.4.1.2 Services Costs

Services Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Services (as reported)	8.6	12.1	15.8	36.5
Re-allocation to Mains	1.7	2.5	3.3	7.4
Total Services	6.9	9.6	12.5	29.0
Allowance	6.4	8.1	9.2	23.6
Variance	0.5	1.6	3.3	5.4

Table 80

There are significant and increasing positive variances (overspends) even after the re-allocation of some costs to mains, due to high unit costs caused by:

- A rate of price inflation within the construction sector that is significantly higher than RPI.
- The re-classification by GDNs of unprotected (without cathodic protection) steel services as non-standard and their subsequent policy replacement, rather than retention and transfer, when discovered. A combination of features within the allowance (forecast EPC cost reductions from 2003/04 + reducing RPEs (real price effects) from 2004/05) that act to reduce the allowed unit costs in real terms.
- Over five years and after the re-allocation of costs from services the GDN will exceed the allowance by approx. £20m (48%).

8.4.2 REASONS FOR VARIANCES

Key points raised by the Scotland are:

- i) Services volumes are higher than allowance

The GDN underperformed the allowance in volume terms over the three years to 04/05. Over five years, the variance forecast is negligible.

In the event of service replacement in excess of the allowance being required, we recommend that these volumes be allowed as additional workload. (Note that Transco services forecasts were scaled-back at the last review.)

- ii) The allowance was inadequate from the outset

Allowed mains and services costs were developed from the Transco submissions at the 2001 price control review. We understand that these submissions reflected contemporary costs but note the adjustments made for anticipated efficiencies (replacement by the servi-flex method, EPC cost reductions, and EfV savings (mains)) combined to exert a downward pressure on costs. These downward cost pressures are offset by RPEs (real price effects) that anticipate cost inflation over and above RPI over the review period, increasing to 03/04 but then decreasing as the market, and Transco's proposed recruitment and training programme, responded to increasing demand. The net effect, obscured to an extent by adjustments at separation, is decreasing unit cost allowances from 04/05 onwards.

- iii) Costs were subject to periodic market testing through a competitive tendering process

EPC contracts in Scotland were let in 2002 and revised regularly by agreement. Cost increases over the period will reflect these revisions.

- iv) The impact on gas contractors of the ramp-up in replacement workload – including recruitment, training of additional resources, management and supervision – has been significant

These factors were taken into account in the control which includes RPEs (real price effects) rising to 12% in 2003 before falling in response to recruitment and training. Training and costs were included in the Repex mains control with some 300 recruits anticipated each year to 06/07.

- v) The gas sector suffers from additional qualified labour shortages compared to other infrastructure businesses, due to the higher levels of qualifications

As described above, training requirements were anticipated and included in the control. If the GDN failed to recruit and train in adequate numbers to resource its programme, it would be inevitably be exposed to the risk of higher costs if it needed to recruit ready trained personnel.

8.4.3 EFFICIENCY ANALYSIS

8.4.3.1 Project Review

A mains and services replacement project (Corsewell Street, Coatbridge; estimated cost £290,830) was reviewed and from the information supplied we can confirm that the selection of pipes for replacement, the design and project costing substantially followed the required processes. The project was authorised under delegated authority.

A short report of the project is attached as appendix 8.

8.4.3.2 Unit Costs

The real relationship between mains and services costs in some GDNs is uncertain and the use of bundled rates introduces further uncertainties unless these costs are properly allocated.

Comparative analysis of unit costs has thus proved difficult as within Scotland there are significant year to year unit cost variances; there are also significant (within year) variances between the unit costs of similar jobs. Similar issues exist in other GDNs and it would be unsafe at present to draw conclusions about efficiency from inter-GDN unit cost comparisons.

Long term, after appropriate cost reporting arrangements have been introduced to remove these anomalies, cost comparison between GDNs will become a key part of efficiency assessment.

8.4.3.3 Construction Contracts

At the start of the period the Network had conventional DEPC contracts in place, contractors being paid according to a schedule of rates.

From October 2002 most of Scotland's Repex work was carried out by contractor via two EPC contracts. These contracts also used a schedule of rates, indexed to RPI (RPI-X in the case of replacement mains) with price reviews at yearly intervals.

There has been significant re-working and simplification of the schedule, with rates being "bundled" and adjusted by agreement. During this process Scotland and its contractors have presumably made reference to construction cost indices and it would be appropriate to formalise this process, although the indexation of the control would need to reflect this reality. The contracts are due for re-tendering next year.

The format of the contracts is unusual, with the replacement mains & services schedule linked to RPI-2%, and other schedules linked to RPI, and all subject to regular rate review. It is likely that the GDN accepted increased overall costs in exchange for fixed (RPI-2%) replacement rates and more certain financial performance relative to the Supplementary Incentive Mechanism.

We judge the increase relative to the move to rates linked to RPI likely to be in the range 0 – 10% and have applied an adjustment of -5% to services to reflect this. Note that we have not applied this adjustment to mains because the Supplementary Incentive Mechanism deals with variances within the control.

Another effect of the contract arrangements (and the Supplementary Incentive Mechanism) has been to distort the allocation of costs to mains and services. On a unit costs basis services are significantly more than the allowance and we estimate that up to £24m (32%) of services costs may have been re-allocated from mains by the contract arrangements. Adjustments have been made to set the trend in mains and services unit costs at the same rate, i.e. mains and services unit costs rising or falling at the same rate, whilst maintaining a reasonable proportion between mains and services costs. Thus we have re-allocated 25% of services costs to mains each year

8.4.3.4 Direct Employees

A small proportion of Repex work is carried out by direct employees, often when emergency work levels are low. Personal/crew productivity is no longer recorded and the Network has introduced alternative measures to improve productivity. We acknowledge that direct employees may be disrupted by emergency work or other duties, and in some circumstances may not appear to be efficient, however we believe it fundamental to the management of this resource that individual or team achievement is recorded and available to managers on a weekly basis. In respect of this we regard up to 15% of production to have been and have adjusted costs by 7.5% to reflect this.

8.4.3.5 Materials Procurement & Wastage

There are some doubts about the strategy for procurement generally, but the DGN has a good understanding of the factors influencing PE costs, the principal component of Repex materials, and there is no evidence of inefficiency.

8.4.3.6 Capitalised Overheads

The cost of overheads is clear and we have made a comparison between the GDNs (2004/05), comparing gross mains and services expenditure and the associated overhead. Overheads form a significant part of The GDN's costs – 15% in 2004/05 compared with an average for all GDNs of 14% in the same year. Overheads are driven by a mixture of semi-fixed (e.g. project preparation and design) and variable costs (e.g. Employee Related Overheads) in so much that the proportions of direct labour working on Repex projects may change) and are not therefore meaningfully compared at this level. However we recommend that overhead allocation is included as part of the forthcoming five year review.

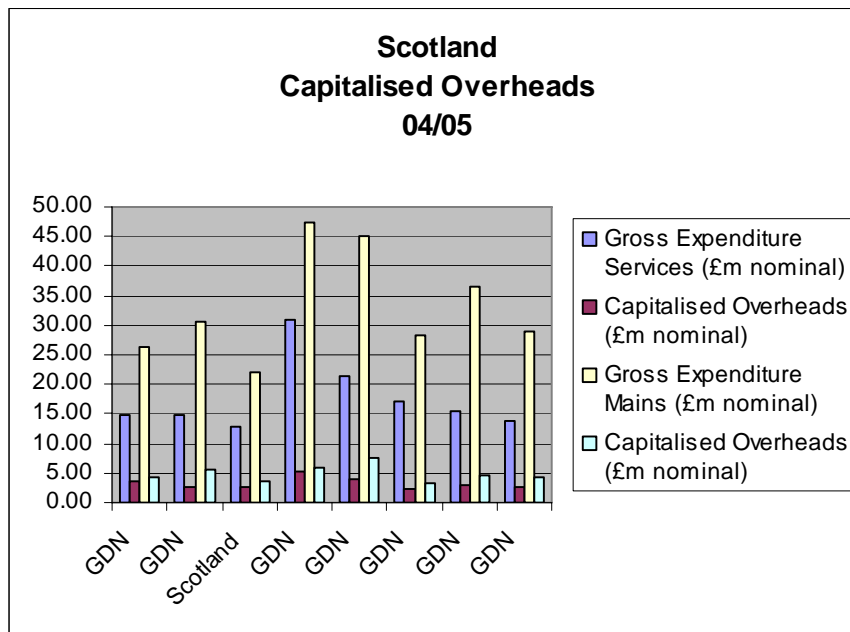


Figure 37

8.4.3.7 Allocation of Costs

Net Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	29.2	31.9	41.9	103.0
Mains (as reported)	20.6	19.8	26.1	66.5
Re-allocation from Services	1.7	2.5	3.3	7.4
Total Mains	22.3	22.3	29.4	74.0
Services Net Investment	6.9	9.6	12.5	29.0
Wasteful/Unnecessary	0.2	0.3	0.4	0.9
Mains	0.0	0.0	0.0	0.0
Services	0.2	0.3	0.4	0.9
Ofgem Adjusted Net Investment	6.7	9.3	12.1	28.1
Allowed Workload	6.7	7.4	11.4	25.6
Additional Workload	0.0	1.7	0.5	2.2
Deferrable/Unplanned but Predictable	0.0	0.2	0.1	0.3

Table 81

Costs are re-allocated from services to correct the effects of the Supplementary Incentive Mechanism and contract arrangements.

An adjustment is made to reflect contract inefficiencies relative to services work

Categorisation of expenditure is according to the reporting definitions at 2.7.

8.5 FORECAST EXPENDITURE

8.5.1 HIGH LEVEL VARIANCES ANALYSIS (APR 2005 TO MAR 2007)

Mains Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total
Mains (as reported)	20.6	19.8	26.1	27.5	33.7	127.8
Re-allocation from Services	1.7	2.5	3.3	4.0	5.1	16.5
Total Mains	22.3	22.3	29.4	31.5	38.8	144.3
Allowance	25.1	19.6	26.1	26.0	25.2	121.9
Variance	-2.8	2.6	3.3	5.5	13.6	22.4

Table 82

Replacement mains trends are expected to continue much as in the first three years of the control period with variances increased by re-allocation from services.

Services Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total
Services (as reported)	8.6	12.1	15.8	18.0	22.6	77.1
Re-allocation to Mains	1.7	2.5	3.3	4.0	5.1	16.5
Total Services	6.9	9.6	12.5	14.1	17.5	60.6
Allowance	6.4	8.1	9.2	9.3	8.2	41.1
Variance	0.5	1.6	3.3	4.8	9.3	19.5

Table 83

Services variance is driven largely by higher unit costs, offset by the re-allocation to mains.

8.5.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

Reasons for the variance are unchanged from 2002/03 – 2004/05.

8.5.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

Net Repex (excluding re-chargeable diversions) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
Reported Net Investment	29.2	31.9	41.9	45.6	56.3	204.9	58.4
Mains (as reported)							
2.3.1.3	20.6	19.8	26.1	27.5	33.7	127.8	33.9
Re-allocation from Services							
2.3.1.3	1.7	2.5	3.3	4.0	5.1	16.5	0.0
Total Mains	22.3	22.3	29.4	31.5	38.8	144.3	33.9
Services Forecast Net Investment	6.9	9.6	12.5	14.1	17.5	60.6	24.5
Adjustments	0.2	0.3	0.4	0.5	0.7	2.1	7.3
Mains							
2.3.1.3	0.0	0.0	0.0	0.0	0.0	0.0	4.1
Services							
2.3.1.3	0.2	0.3	0.4	0.5	0.7	2.1	3.2
Ofgem Adjusted Forecast	6.7	9.3	12.1	13.5	16.8	58.5	51.1
Allowed Workload	6.7	7.4	11.4	13.4	14.8	53.8	
Additional Workload	0.0	1.7	0.5	0.0	2.0	4.2	
Deferrable/Unplanned but Predictable	0.0	0.2	0.1	0.1	0.0	0.4	

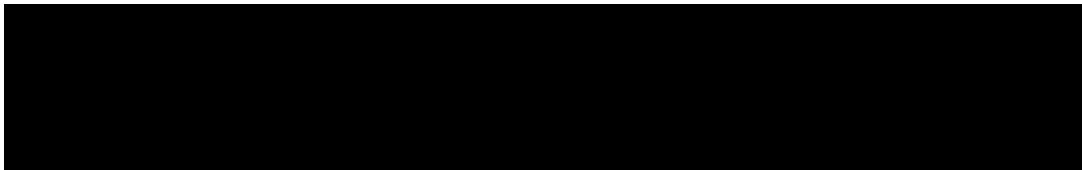
Table 84

Reallocations from services to mains continue to the end of 2006/07.

There is no reallocation in 2007/08, assuming the review of the Supplementary Incentive Mechanism, allowing a return to appropriate cost allocation.

There are continuing adjustments to services reflecting on-going contract and direct labour inefficiencies under the current arrangements. The 2007/08 adjustments reflect workload adjustments and efficiency improvements.

8.5.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)



8.5.4.1 Recommendations

We have considered and tested various forms of analysis to assess the efficiency of the proposed expenditure.

Direct inter-GDN comparison is unreliable because the real relationship between mains and services costs in some GDNs is uncertain. The use of bundled mains rates introduces another uncertainty, as does the contract position of each GDN, with some at the end of long contracts and others entering or in the early stages of new arrangements.

To take an overview of efficiency, Scotland workloads for the year have been re-costed using the unit costs (unadjusted) provided by Transco at the last review. This is the best information available to us and there is some confidence that the relationship between the unit costs is representative. The purpose is to apply a common yardstick to the GDN volumes and assess, after adjustments for regional cost differences, the relative positions of the GDNs.

Because of the uncertainties involved, and because this is a comparison of forecasts rather than actual costs, we suggest that GDNs above a benchmark: the 4th most efficient in cost terms, should close 1/3 of the gap between GDN and benchmark. In this case a reduction in forecast cost (including overheads) of 7%.

For reasons described above unit costs are as presented and, where anomalies existed, these remain.

Mains (excluding re-chargeable diversions)	As Presented				Proposed inc O/H		
	Vol	Unit Cost	Total	O/H	Vol	Unit Cost	Total
	Km	£m	£m	£m	km	£m	£m
<=75mm	107.0	83.1	8.9	0.7	107.0	83.4	8.9
>75mm to 125mm	94.0	79.2	7.4	0.8	94.0	82.0	7.7
>125mm to 180mm	30.5	84.9	2.6	0.6	30.5	96.4	2.9
>180mm to 250mm	7.7	304.9	2.3	0.5	7.7	339.7	2.6
>250mm to 355mm	19.2	345.1	6.6	0.3	19.2	337.7	6.5
>355mm to 500mm	9.5	303.9	2.9	0.3	9.5	308.3	2.9
>500mm to 630mm	0.0	0	0.0	0.0	0.0	0.0	0.0
>630mm	0.0	0	0.0	0.0	0.0	0.0	0.0
Total all sizes	267.8		30.8	3.2	267.8		31.6

Table 85

Replacement Services Domestic	As Presented				Proposed inc O/H		
	Vol	Unit Cost	Total	O/H	Vol	Unit Cost	Total
	Units	£/m	£m	£m	Units	£/m	£m
Relaid services associated with mains replacement	21,795	524.9	11.4	1.4	14,040	525.5	7.4
Relaid services not associated with Mains replacement (bulk relays)	200	338.4	0.1	0.0	200	352.6	0.1
Services relaid after escape	2,469	1024.1	2.5	0.3	2,469	1067.0	2.6
Service test & transfer to new or other main	9,796	313.7	3.1	0.4	17,551	374.8	6.6
Reposition domestic meter - service relays	402	505.1	0.2	0.0	402	526.2	0.2
Purge & relight after domestic Service work	34,662	0.0	0.0	0.0	34,662	0.0	0.0
Service relay domestic meterwork	955	1542.0	1.5	0.2	955	1606.6	1.5
Other domestic services	0	0	0.0	0.0	-		0.0
Total domestic services	70,279		18.8	2.3	70,279		18.4

Table 86

Replacement Services Non Domestic	As Presented				Proposed inc O/H		
	Vol	Unit Cost	Total	O/H	Vol	Unit Cost	Total
	Km	£m	£m	£m	km	£m	£m
Non-domestic service replacement	326	484.0	0.16	0.06	326	628.6	0.2
Non-domestic meterwork associated with mains replacement	0						
Other non-domestic service work	0						
Total non domestic services			0.2	0.1			0.2

Table 87

Note that relaid and transferred services have been adjusted to historical proportions.

Multiple Occupancy Buildings (Risers >20m)

The GDN has forecast expenditure of £3.29m for the replacement of risers & laterals in high-rise blocks.

The GDN is right to be considering the condition of these assets and their future, but replacement is relatively expensive on a cost per customer basis and may not be economically justified. Conversely there are often strong social reasons for maintaining a supply. Safety issues are also a consideration; the consequences of an incident (whether the cause is upstream or downstream of the meter) are likely to be greater within high-rise blocks. These issues merit wider consideration within the industry and a detailed examination of the proposed programme should be included within the five year review.

As an interim measure an allowance of £1.0m is suggested to deal with any urgent replacement during the year.

8.5.4.2 Supplementary Incentive Mechanism

The Supplementary Incentive Mechanism was introduced to address the “diameter effect” where a workload of smaller diameter mains (than forecast) could produce savings for the GDNs. The scheme also focuses on mains de-commissioned, rather than new main laid, and rewards efficiency in mains replacement.

During the operation of the scheme a number of issues have arisen:

- i) Contract rates are skewed in favour of mains and cost transparency of mains and services has been lost.
- ii) The correlation between the matrix allowance and actual cost of abandonment is suspect.
- iii) The matrix has had an untoward influence on the design of replacement schemes; for example we have heard of instances where one of a pair of mains in a street has been de-commissioned, causing the services to be transferred/relaid to the new main on the other side, when the optimum solution would have been to replace both mains and transfer/relay to the existing mains position.
- iv) Replacement projects are being supported by reinforcement mains (Capex) and the true cost of the programme is obscured. “Capitalisation” rules have been changed to include a formula for the situation where a single main replaces two existing mains in a street.
- v) In certain circumstances mains may be cut-off e.g. demolition sites and charged to Opex.

In view of the above our recommendation is that the scheme should be reviewed. Mains volumes are reasonably certain through the programme accepted by the HSE, although gaming with the diameter effect remains possible, and could be addressed with a matrix for new rather than de-commissioned pipe. But this is likely to perpetuate the current price distortion. The inclusion of services is another option, but most of the issues above would remain unaddressed and we think it more appropriate that the GDN is rewarded for accurate forecasting of Repex as a whole, perhaps by comparing the forecast volumes and costs with actuals at each year end.

8.6 FORECAST TRENDS (2002 TO 2013)

8.6.1 HIGH LEVEL TREND

8.6.1.1 Mains Activity

Mains Volumes

There is considerable variance at the end of the period between the Ofgem Price Control and Scotland’s actuals/forecast.

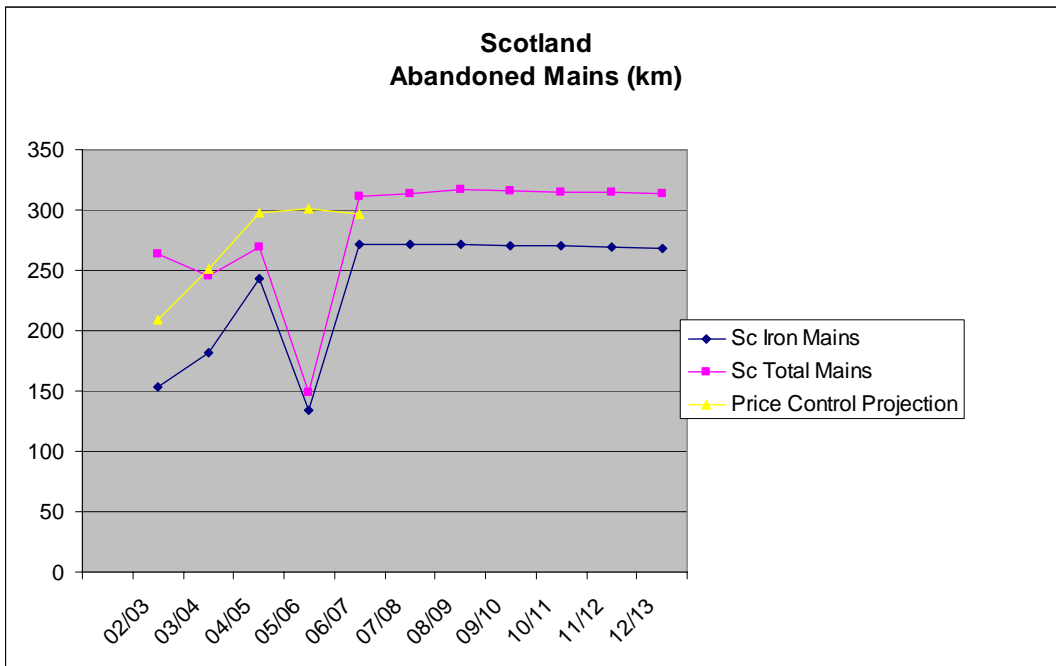


Figure 38

The price control assumed the HSE requirement plus about 12% condition replacement based on historical volumes.

The DGN agreed with the HSE to increase the rate of de-commissioning of iron mains by 10% and so total mains de-commissioning is now forecast to run at 313km/yr from 2006/07. Although the condition element of the workload is slightly higher than the norm we regard the forecast as reasonable.

8.6.1.2 Services Activity

Services estimates within the price control were based on historical ratios with mains de-commissioned. Going forward, the level of services jobs is consistent with the mains volumes.



Figure 39

8.6.1.3 Forecasting Issues

Workload

The ramping-up of de-commissioned mains is completed in 2006/07 and Scotland then has to retain, rather than increase its workforce each year. This should help to mitigate cost pressures, although a greater proportion of larger diameter pipes (and human effort) will need to be included as the programme progresses.

The removal of the highest risk pipes is progressing and GDNs have the opportunity to move towards larger projects, subject to acceptance of revised procedures by the HSE. As well as the benefits of scale, these larger projects offer opportunities for innovative management, improved techniques and further (albeit modest) cost reduction. Consumers should also benefit from a more carefully planned and managed operations.

Contracts

Scotland's EPC contracts expire in October 2007 and the new arrangements will be an important feature in the strategy to bring its costs into line with comparable networks.

Large Diameter Pipes

The size for size replacement of large diameter pipes is expensive and we would expect to see a strategy for each mains network that identified the large diameter mains in the programme and considered alternatives to size for size replacement.

System Condition

The replacement programme is focused on reducing risk, but as it progresses the network should respond to the investment made. The GDN has reported on a number of indicators of network condition, e.g. the number of instances of gas in buildings; the number of public reports of escapes received; tonnes of methane lost through leakage etc. All seven indicators are reacting as expected and responding to the investment. Further details of the indicators and their behaviour are attached at appendix 9

8.6.2 COMMENTS ON TREND

Disaggregation of the price control allowances, and events since the control was set, has led to a poor match between allowances and actual workload and cost. Volume and cost trends are now clearer although further work is required to give good cost visibility to activity level.

9 LTS REPEX

9.1 SUMMARY OF FINDINGS

9.1.1 15 MONTH PERIOD (JAN 2001 TO MAR 2002)

The Gross Repex spend for all GDNs for the 15 month period was £6.7m with contributions of £4.4m giving a net UK total of £2.3m. There is no specific detail as there is no single project above £0.5m. This expenditure is deemed efficient and allowable. There are no Repex allowances given for this period.

9.1.2 5 YEAR PERIOD (APR 2002 TO MAR 2007)

Scotland has one named rechargeable pipeline project in the current price control period. This together with other small unnamed rechargeable project(s) have recovered income (contributions) exactly equal to the gross expenditure: i.e. net actual expenditure was nil. The Ofgem allowance however, indicates a required net income of £0.8m for this work over this period.

This under recovery of contributions has been allowed as additional workload to negate the variance.

Net Repex All figures £m 2005/06 prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total	2007/08
Allowed Net Investment	-0.5	-0.3	0.0	0.0	0.0	-0.7	
Total GDN Variance⁴	0.4	0.2	0.4	0.0	-0.2	0.8	
Reported Net Investment	-0.1	0.0	0.4	0.0	-0.2	0.0	0.0
Wasteful/Unnecessary Actual Expenditure	0.0	0.0	0.0			0.0	
Adjustments to Forecasts				0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	-0.1	0.0	0.4	0.0	-0.2	0.0	0.0
Allowed Workload	-0.5	-0.3	0.0	0.0	0.0	-0.8	
Additional Workload	0.4	0.3	0.4	0.0	-0.2	0.8	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 88

⁴ Variance percentage values not included as allowance is some years are negative.

9.2 HISTORIC EXPENDITURE (JAN 2001 TO MAR 2002)

The RAV adjustment for the period Jan 2001 to March 2002 was not included in the previous review. The LTS Repex expenditure for this period has been submitted by NGG only as a UKD total.

The Gross Repex spend for all GDNs for the 15 month period was £6.7m with contributions of £4.4m giving a net UK total of £2.3m. There is no specific detail as there is no single project above £0.5m. This expenditure is deemed efficient and allowable. There are no Repex allowances given for this period.

9.3 HISTORIC EXPENDITURE (APR 2002 TO MAR 2005)

9.3.1 HIGH LEVEL VARIANCES ANALYSIS

LTS Repex All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross	Actual	1.0	3.7	1.2	5.9
	Allowance	1.8	2.0	0.0	3.8
	Variance	-0.8	1.7	1.2	3.1
Contributions	Actual	1.1	3.8	0.8	5.7
	Allowance	2.4	2.3	0.0	4.7
	Variance	-1.3	1.5	0.8	1.0
Net	Actual	-0.1	0.0	0.4	0.3
	Allowance	-0.5	-0.3	0.0	-0.8
	Variance	0.4	0.2	0.4	1.0

Table 89

9.3.2 REASONS FOR VARIANCES

All the projects were rechargeable. The allowance set required a recovery of contributions greater than expenditure by £0.8m (in this period) whereas there was an under recovery of £0.3m leading to an adverse variance of £1.0m. However, this under recovery is reduced in the next two years.

9.3.3 EFFICIENCY ANALYSIS

LTS Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	-0.1	0.0	0.4	0.3
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	-0.1	0.0	0.4	0.3
Allowed Workload	-0.5	-0.3	0.0	-0.8
Additional Workload	0.4	0.3	0.4	1.1
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0

Table 90

9.3.3.1 Project Review

There were no Repex projects reviewed in this period.

9.4 FORECAST EXPENDITURE

9.4.1 HIGH LEVEL VARIANCES ANALYSIS (APRIL 2002 TO MAR 2007)

LTS Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total	2007/08
GDN Forecast Net Investment	-0.1	0.0	0.4	0.0	-0.2	0.0	0.0
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ofgem Adjusted Forecast Net Investment	-0.1	0.0	0.4	0.0	-0.2	0.0	0.0
Allowed Workload	-0.5	-0.3	0.0	0.0	0.0	-0.8	
Additional Workload	0.4	0.3	0.4	0.0	-0.2	0.8	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	0.0	0.0	0.0	

Table 91

LTS Repex All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross	Actual	1.0	3.7	1.2	0.0	1.6	7.5
	Allowance	1.8	2.0	0.0	0.0	0.0	3.8
	Variance	-0.8	1.7	1.2	0.0	1.6	3.7
Contributions	Actual	1.1	3.8	0.8	0.0	1.8	7.5
	Allowance	2.4	2.3	0.0	0.0	0.0	4.7
	Variance	-1.3	1.5	0.8	0.0	1.8	2.8
Net	Actual	-0.1	0.0	0.4	0.0	-0.2	0.0
	Allowance	-0.5	-0.3	0.0	0.0	0.0	-0.7
	Variance	0.4	0.2	0.4	0.0	-0.2	0.8

Table 92

9.4.2 REASONS FOR VARIANCES

All the projects were rechargeable. The allowance set required a recovery of contributions greater than expenditure by £0.7m (in the full period) whereas there was a small under recovery leading to an adverse variance of £0.8m.

9.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

Scotland will underspend their allowance in this period by £0.2m.

9.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

There is project expenditure of £4.9m in 2007/08 and a full recovery. This is deemed to be allowable.

9.5 FORECAST TRENDS (2002 TO 2013)

9.5.1 HIGH LEVEL TREND

Pipeline replacement is nearly always rechargeable. Planning and budgeting for these projects is always difficult as the requirements and especially the timings are driven by third parties; e.g. local authorities, Highways Agency, Network Rail. The policy is to recover the true uplifted costs of the work.

9.5.2 COMMENTS ON TREND

Scotland's programme for 2006/07 to 2012/13 indicates five rechargeable pipeline diversion projects. These total a gross expenditure of £20m with full recovery and a net cost of zero.

10 INVESTMENT POLICIES AND PROCEDURES

10.1 REVIEW OF INVESTMENT POLICIES AND PROCEDURES

Expenditure incurred in the years to 2004/05 will have resulted from the Investment Policies and Procedures under NGT and NGG. Much of the expenditure in 2005/06 and possibly 2006/07 will also have been committed under the same processes.

Indeed, some of the longer term project commitments up to 2012/13 showing in Scotland's current plans will have carried forward from the NGG era. SGN has been through a transitional phase of managing legacy commitments whilst making a start on implementing its own business plans.

It is not clear yet what impact this will have on the Capex spend up to 2013. The effect of any policy changes should become apparent in the main review, especially any outcome from the revision to the NTS offtake rules and the impact on an LTS pipeline storage programme.

Scotland has made this general statement which essentially confirms its continuance of NG legacy policies:

“With regards Policies, The Gas Requirements Manual (SGN/PL/GR/1) is the only significant Policy to be issued by SGN. Whilst it has been re-written to reflect changes in structures and arrangements, the actual requirements do not differ from the Transco version. All other Policies will be reissued as SGN documents shortly. Again, the actual requirements will not differ greatly from the Transco ones.”

10.2 CRITERIA USED FOR INVESTMENT DECISIONS

For LTS investment decisions, there are two primary sources of data. Firstly the network planning models (Falcon for >7 bar) will identify capacity shortfalls in the network and will validate potential solutions. However, the model will only be as good as the data fed into it. The Network Design and Planning Report for Scotland indicates that their planning processes are satisfactory with the exception that a network validation report was not provided. (see Appendix 1)

There is no stated intention by Scotland to move policy away from the current planning criteria as these are of course a licence obligation.

The second criterion for investment decisions derives from asset condition and the balancing of capital or replacement expenditure against ongoing increasing Opex (and increased risk of failure). Scotland gave a satisfactory response to this in their submission.

10.2.1 PROJECT APPROVAL PROCESSES

There is no evidence that Scotland is moving away from the legacy process on which its current investment will have been authorised.

10.2.2 CONTROLLING COSTS

Scotland appears to have satisfactory cost control processes.

10.2.3 MANAGEMENT OF INVESTMENT TRADE-OFFS

Scotland gave a comprehensive response to managing lifetime costs for their assets.

“The network has not yet formally adopted PAS55. SGN intends to progress towards full certification with PAS55 over the next 18 months. However, overall, principles of Asset Management are strongly adhered to in the Organisation, Processes and Systems used by the network.”

This gives confidence that looking at trade-offs in general terms is embedded into their processes.

10.2.4 ENVIRONMENTAL AND SAFETY OBLIGATIONS

Scotland has given a comprehensive response to the safety and environmental questions in the BPQ. They have a comprehensive suite of safety and environmental standards and there is no indication that these are any less than those previously implemented under the Transco regime.

In LTS terms, environmental issues impact heavily in cross country pipeline work; indeed it would not be possible to obtain the necessary consents without a very comprehensive review (Environmental Impact Assessment) well ahead of the works. There is no indication that Scotland intends to lessen this obligation.

APPENDIX 1 NETWORK PLANNING AND DESIGN

A1.1 TASK DESCRIPTION / PROCESS

In the one year price control review, Ofgem called for information from the GDNs on the different elements which comprise the network planning procedure. The information requested included numerical data regarding network analysis and storage simulation as well as qualitative explanations of a number of factors.

The information provided has been studied in order to evaluate the overall network planning process carried out for each GDN. This has principally related to local transmission and storage systems. Diurnal storage requirement and availability as well as transmission capacity evaluations have been carried out since these must be taken together. Additionally load forecasting and demand allocation processes have been examined. The validity of the simulated networks and their appropriateness for use as definitive planning aids have been examined and a view arrived at as to the robustness of the actual networks and plans for their reinforcement to meet future requirements.

For each GDN there is a separate LTS report which looks at the overall spend, the summary data for all the projects and the detailed report(s) on the selected projects, plus generic data from narrative answers.

A1.2 PLANNING PROCESS REVIEW: SCOTLAND

A1.2.1 SUMMARY OF DATA SUPPLIED

Scotia Gas Networks consists of the Scotland and Southern GDNs. The Southern GDN contains the SE and SO LDZs. Data was supplied separately for each of the three LDZ networks contained in the Scotia Gas Networks. The level of detail varied in that data for the South networks was more comprehensive than the data for the Scotland network.

A1.2.2 SUMMARY OF FINDINGS

Having examined the data provided for Scotia Gas Networks GDNs, we can confirm that it was sufficient to ascertain the planning capability within the GDNs.

We have reached the conclusion that the planning work for development of the Scotia Gas Networks GDNs, and in particular that of the local transmission and storage systems, has been carried out in a competent manner. Because of the greater detail provided for the Southern, there is a greater degree of confidence generated regarding the capability of that GDN.

A1.2.3 PROCESS REVIEW

- i) Additional narrative questions relating to LTS and Storage Capacity
Appropriate diagrams were provided detailing the Local Transmission System (LTS)
- ii) System flow study report.
Information relating to forecast system flows for the 1 in 20 condition and actual system peak days for each year were provided. These gave sufficient information to allow identification of entry and exit flows and pressures at key points. The actual recorded demands for the south are considerably lower than predicted 1 in 20 peak day demands resulting in a large variation between forecast and actual pressures which is as would be expected. These are consistent with the reduction in pipeline pressure losses which will occur at flow rates significantly lower than those simulated in a peak day model.
- iii) LTS network capacity report at 1 in 20 peak day demand for each year.

A spreadsheet containing forecast flow and pressure information was provided for each of the networks and validation reports for the two southern networks were also provided. This is developed in section 3.12.

- iv) Provide a summary report highlighting any problem areas for networks other than the LTS

Information was provided identifying a small number of problem areas where the solution is dependent on third party involvement.

- v) Describe how load forecasts are derived and what level of load disaggregation is used.

A brief overview of the process used was provided indicating that the GDNs are following an agreed and documented procedure.

- vi) Identify any significant changes, if any, in demand and supply forecasts, or forecasting methods, since the last published ten-year statement.

The response contains a statement to the effect that no changes in forecasts or the methodology used in their derivation had taken place, which is satisfactory.

- vii) Describe how the total GDN peak day forecast and the LP network pk6 demands are reconciled with each other.

A brief description of the process used in developing GBNA and Falcon network analysis models and how demands are derived for both was provided. This indicates an established liaison route between analysis sections dealing with different pressure tiers.

- viii) Is the demand forecasting methodology likely to change in the forecast period? If so please describe the changes.

No changes to the methodology have been identified. This is satisfactory.

- ix) Describe the trends in the GDN's demand forecasting performance over the reporting period.

An adequate description of demand forecasting trends was provided and sound reasons given.

- x) Explain the basis for estimating future large customer connections and the contributions receivable.

A brief overview of the procedure involved in allowing for load growth from new large consumers was given and the reference made to the SGN connection charges document setting out the contributions which would be required.

- xi) Explain how diurnal storage requirements are determined.

An adequate explanation of the process was provided to allow the GDN's understanding of the process to be assessed. We found the process to be satisfactory.

- xii) Describe any network analysis programmes used and the network validation process

A description of the programmes and processes involved including detail of the validation procedures used within the GDNs was provided including a copy of the network validation document report for two of the networks making up the Southern GDN. The information provided gave a satisfactory explanation of the process and the validation reports indicate an appropriate degree of confidence in the network analysis process used. We found that the validation report for SE LDZ demonstrated an understanding of the limitations of that model. Similarly, that for the SO LDZ, although somewhat old, also gave confidence. There was no information provided for

the Scotland GDN and, as planning work is carried out by a different planning team from Southern, no firm conclusion can be drawn about the suitability of the model or the capability of the planners.

- xiii) Provide details of the maximum volume of diurnal storage required and express this as a % of the 1 in 20 peak day demand in each year. Give reasons for any trends.

The information and a satisfactory explanation of future trends were provided

APPENDIX 2 REPORT ON PROCUREMENT & LOGISTICS

A2.1 INTRODUCTION

Procurement can influence the costs of a business significantly. The review of the procurement and logistics operation within Scotia Gas Networks (SGN) was undertaken to ascertain whether or not the strategic approach and process is robust and effective in minimizing costs whilst maintaining security of supply.

The responses for both Networks within Scotia Gas are identical with the exception of specific contract details. Therefore this report covers both Networks.

A2.2 SOURCING STRATEGY

Scotia Gas (SGN) has failed to provide a Sourcing Strategy. The information provided gives steps taken within a procurement process but does not demonstrate a strategy for procurement and how it will impact the needs of the business.

SGN have not provided anything that gives confidence that they have any plans in place for future procurement activities to enable their business to be cost effective and have security of supply.

A2.3 POLICIES AND PROCEDURES

Scottish and Southern Energy are providing Procurement as a managed service to SGN. Therefore the policies and procedures they use are SSE's with the exception that the NG process has been retained in the short term for goods and services not on contract.

This process is :

- i) purchases up to £4k users place their own orders
- ii) £4k to £20k they obtain 3 or more quotes and place the order with the lowest overall costed quote
- iii) above £20k discuss overall strategy with procurement who will deal with the requirement

They have not indicated how the SSE policies and procedures work and have not reflected the requirement for certain spend levels to be tendered through the European Utilities Directive.

The evidence provided does not demonstrate a robust process.

A2.4 STRATEGIC PURCHASES

A2.4.1 PE PIPE AND FITTINGS

SGN have a clear understanding of the cost implications regarding this product. They have identified their concerns regarding the reducing competition in this market due to the actions of NGG in their procurement of this product category.

They have also stated that price increases are due to raw materials and the reduced capacity to have such large volume incentives as NG have had in the past.

They have demonstrated that they are actively looking to find ways of minimizing the cost increases and are currently negotiating with a supplier or suppliers regarding price review.

They are also looking at alternative specifications for the supply of fittings which could open up the market place and increase competition.

This market with its reducing number of suppliers needs to be managed and all possible avenues explored to minimize cost increases and open up more competition where possible.

A2.4.2 OTHER STRATEGIC PURCHASES

For protective clothing and Steel pipe and fittings the contracts novated from NG are still being used. No information has been provided on any views of material changes in cost or future strategies.

A2.4.3 EPC CONTRACTS

These are subject to competitive tender but no other details provided.

A2.4.4 LTS PROJECT MANAGEMENT

This is mostly done in-house with the exception of very high value projects that may be subject to competitive tender for their project management.

A2.4.5 DS MAINS TO METER FITTINGS

Using the novated contract with Crane but have tendered other items and will be placing framework agreements shortly.

Limited detail has been provided regarding the strategic purchases. Without more detailed responses the assumption made is that SGN's procurement is not organized or is not fully in place. The limited information provided does not give confidence that they are equipped to take full advantage of the impact that Procurement, if done effectively can have on the costs of a business.

A2.5 PROCUREMENT PROCESS

The following areas were questioned to gain an understanding of how robust and effective the processes being used in SGN are and how they support the sourcing strategy.

A2.5.1 COST EFFECTIVENESS

A robust set of assessment criteria is used in evaluating tenders.

A2.5.2 TOTAL COST OF ACQUISITION

The response provided has not addressed the issue of how they ensure that they are awarding the most cost effective contract and achieving total cost of acquisition as opposed to best price.

A2.5.3 SECURITY OF SUPPLY -

They are actively seeking alternative sources of supply and set up the appropriate stock levels with suppliers to maintain security of supply.

A2.5.4 HEALTH SAFETY AND ENVIRONMENT

The requirements are set out in their tender/specification and companies are selected from their approved vendors list. Detail on how the HS&E requirements are managed through the procurement process have not been provided.

A2.5.5 SPECIFICATIONS

The SGN policy engineer is involved in the process to ensure that products are compliant with the specification.

A2.5.6 COST REDUCTION

They have demonstrated that they are looking for ways to take costs out by the use of alternative specifications, using alternative sources, encouraging suppliers to produce different items and reviewing logistics costs.

A2.5.7 SPEND DATA

Usage detail is held within their stores system, but this doesn't account for all spend e.g. non-stocked purchases and services etc. Spend needs to be monitored in order to understand costs and be able to review strategies etc.

A2.5.8 PROVISION OF LABOUR

They have EPC contracts in place but have given no information of how they manage or intend to manage fluctuations in labour requirements.

A2.5.9 STOCK LEVELS

These are based on historic and forecast demand, seasonality and local intelligence and are supported by the use of stock management software.

A2.5.10 WAREHOUSING

This is constantly reviewed and alternatives researched to ensure that the most cost effective approach is being taken.

A2.5.11 EMERGENCY STOCKS

There is a very good initiative in place between three of the GDNs, namely SGN, WWU and NGN. This is a shared pool of emergency items stocked by Corus and Uponor on their behalf.

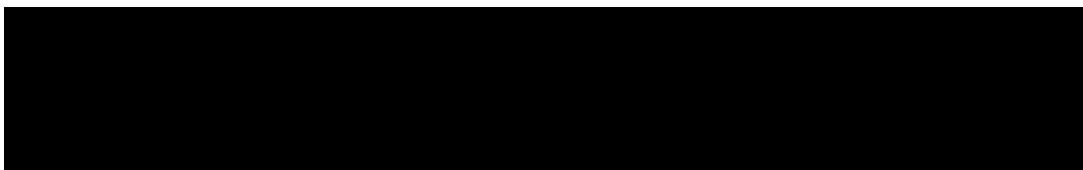
A2.6 MAINS AND SERVICE REPLACEMENT

The response provided is from NGG and explains the EPC strategies from September 1999 up to now.

SGN have terminated the contracts for the provision of some 389 GDOs and are now employing them directly. They have not provided any data on the potential savings or justification for this change in strategy. In their opinion it will create greater loyalty, reduce costs, and provide better control on the quality of staff, training etc.

They have set up SGN contracting but have not explained what this is or how it will work.

For this subject area they have relied on NGG responses and provided very little of their own opinion or views on the effectiveness of existing practices or how they will address any inefficiencies going forward.

A2.7 MATERIAL COSTS



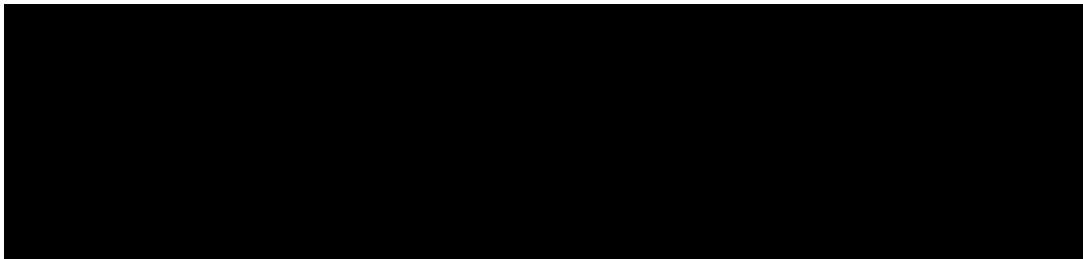
Whilst this is a detailed and comprehensive understanding of one of the key markets for a Gas Utility they have not addressed the issues of other material costs and their trends.

A2.8 CONNECTIONS

SGN have referred to the NG response and documentation when responding to questions regarding connections. They have stated that they intend to transfer connections activity from Fulcrum Connections in-house to SGN Connections in April 2006 (there is no evidence that this has actually happened). They expect that any market related price increases (e.g. Baxter index) will be absorbed by SGN operations as a result of more efficient operational models being adopted, and integration of connections activities with operational units.

The original contracts were let on a target costing basis with pain/gain share arrangements and period reviews to update target costs. In 2003 there was sufficient information and stability to move to a fixed schedule of rates. Annual reviews were introduced to accommodate changes to the direct cost base as evidenced by Baxter and for trigger events that caused significant changes to the economics of the contract.

The table below shows the changes in rates since 2003.



The prices movements show rates increasing below or close to the Baxter Index until July 2005 when South East and South have had increases way above the Baxter Index. Once the increases are averaged the end result shows consistency with the Index.

Scotland have incurred lower increases and when averaged over the period are below the Baxter average.

A2.9 LTS

Procurement is on a one-off basis for each contract. From the investigations made there are no issues with the way in which the procurement in this area has been completed.

As long as there are multiple suppliers of materials and specialized labour contracts and time is allowed in the project planning processes to procure these without duress, this will achieve true market tested prices.

Along with other GDNs, SGN will need to consider how their future position as a smaller buyer in what is already a specialist materials market, will affect security of supply of such materials and services and the prices to be paid. This will be revisited in the main price control review.

A2.10 SUMMARY

Throughout the process SGN have provided little detail on their procurement strategy and processes. A lot of their responses have been reliant on National Grid replies and where they have attempted to make reference to what they are now doing the information is not detailed enough.

The information provided has not demonstrated a very strong Procurement Process and implies that their Procurement function is not well established or organised.

Although, in one sourcing category, PE pipe and fittings they have indicated that they are aware of the market place and price trends and have a strategy for this purchase, they do not have or have not provided a Procurement Strategy for their business.

Based on the information provided, we can only conclude that their procurement process is not robust or inline with their business requirements. Procurement is a key element to managing and minimising costs and this has not been demonstrated.

APPENDIX 3 FULCRUM CONNECTIONS

A3.1 INTRODUCTION

The purpose of this appendix is to provide information regarding GDN connections business processes and Fulcrum Connections (FC) relevant to expenditure on connections activities.

The Service Provider Contract (SPC) forms the basis for the contractual relationship between the Networks and FC. NGG managed the contractual interface on behalf of all networks, including those sold in 2005, until the new owners took these activities back in-house. SGN transferred their connections activities back in-house on 3 April 2006. As appropriate, information obtained from NGG or FC and included in this appendix has been used to consider and analyse connections expenditure for all GDNs.

A3.2 BACKGROUND TO THE ESTABLISHMENT OF FC AS A SEPARATED BUSINESS

The Regulator (Ofgas/Ofgem) instigated an investigation into Transco performance on connections activities in the late 1990s. This resulted in the issue of the Enforcement Order in 1999, which was intended to improve Transco's connections performance and encourage competition in the connections market.

Ofgas found Transco to be in breach of section 9 (2) (a) of the Gas Act due to failing to avoid undue discrimination towards an independent connection provider (ICP) by over quoting for a quotation it offered that company whilst not over quoting other companies for the same connection. Also, Ofgas found Transco to be in breach of standard condition 11(1) of its licence for failing to conduct its transportation business in a manner best calculated to secure that neither Transco nor any person related to it, nor any shipper, obtains a commercial advantage.

To prevent the breaches from re-occurring Ofgas imposed an enforcement order against Transco under section 28 of the Gas Act. The Order obliged Transco to amongst other things:

- obtain ISO 9001 certification for its connections operations;
- introduce a compensation arrangements for parties receiving late or incorrect quotations;
- introduce arrangements for the audit of its performance; and
- publish a connection charging methodology.

Transco were required to implement comprehensive management systems and a compensation payments scheme for failure to meet Standards of Service. The management systems and processes were required to meet the requirements for ISO 9001 accreditation supported by quarterly audits to monitor compliance. Audit reports were to be shared with the Regulator.

The establishment of a separate business organisation was encouraged and development of Transco's proposals was shared with Ofgas. Separation was considered necessary in order to demonstrate that connections activities were not cross subsidised by transportation income and were not given unfair advantage by being part of the monopoly GT activity. It is understood that FC 'start up' total costs were incurred prior to July 2001 and no costs have carried over into the current PCR period.

The Gas Act Enforcement Order was revoked in 2005 and obligations with respect to connections were incorporated within a standard special licence condition on all Gas Distribution Network licensees.

We conclude that the creation of FC as a separate business was an outcome of the issue of the Enforcement Order and that this was discussed and shared with the Regulator. It is understood that Transco did not provide a cost analysis to quantify the effects of separation but, nonetheless, it seems reasonable to presume that both parties were aware, and accepted, that overheads on connections activities would increase as a consequence.

A3.3 SPC PERFORMANCE MANAGEMENT

A3.3.1 PERFORMANCE REVIEW

Under the terms of the SPC, FC is required to comply with all NGG policies and procedures.

Bi-monthly performance management interface meetings are held between NGG and FC. These meetings comprise the following:

- i) Operational Performance Meeting
- ii) Financial Interface Meeting
- iii) Credit and Risk Forum
- iv) Engineering Consistency Forum

A3.3.2 AUDIT

FC has implemented and maintains an Integrated Management System (IMS) to ensure effective management of risk, processes and resources. The audit framework is specified in the IMS and covers a comprehensive range of business processes and systems. Generally, audit reports are appropriately shared with NGG particularly where the actions identified impact on the GDNs.

The 1999 Enforcement Order specified the requirement for an Audits regime which was carried by external auditors appointed by NGG at quarterly intervals until April 2005. Audit findings were briefed to NGG and FC, and action plans were produced. Final Reports were shared with Ofgem. External audits ceased with the cancellation of the Enforcement Order and the Fulcrum Data Integrity Manual now incorporates quotation accuracy.

The SPC requires FC to maintain compliance with appropriate and recognised standards, in particular ISO 9001 which is subject to compliance audit by Lloyds Register.

A3.3.3 PAYMENTS PROCESS

FC invoices to the GDNs include:

- i) Management Fee
- ii) Work execution costs – schedule of SPC rates claimed per job completed – validated by Networks.
- iii) Employer Ordered Works (EOW)

EOW are essential works additional to the customer quotation scope of work and are subject to authorisation by GDNs before work is undertaken and payment is made. Associated costs are controlled by NGG via the Connections Invoices File Validation System (CIFVS) which was introduced in 2004. An equivalent manual system was used prior to that date.

A3.3.4 EXPENDITURE CONTROL AND MONITORING BY NGG

NGG indicated that control over FC expenditure is achieved as follows:

- Compliance
 - Compliance with relevant NGG policies and procedures leads to economic and efficient connections designs and their construction.
 - NGG Framework Responsible Businesses - sound & efficient financial control is a key underpinning principle
 - Fulcrum Integrated Management System (IMS)
- SPC Management
 - Ensures that correct drivers exist within FC to manage and control expenditure
 - Ensures that only the costs that are reasonably incurred in discharging the obligations under the SPC are passed on to NGGD
- Financial Control
 - Invoice approval
 - Approval process for EOW
 - Expenditure approval levels

Connections expenditure and income is monitored at Distribution Review Committee (DRC) level within NGG. The management information utilised for this purpose essentially comprises high level Capex, Repex and Opex information to compare actual cost with budget and forecast. In terms of connections activities, the expenditure information is disaggregated to some degree, particularly for services. We have found no evidence of information to monitor activity expenditure efficiency and performance improvement at DRC or any other level within NGG, e.g. activity unit costs. This observation is further supported by the inaccuracy of NGG's initial submissions on Capex activity expenditure and workload information as requested in the BPQ.

Connections related projects are managed in accordance with NGG policies and procedures. NGG's Distribution Project Sanctioning Committee is required to approve all connections related projects, and/or authority to quote the customer, above £250k. All other projects are approved under delegated authority.

A3.3.5 EXPENDITURE CONTROL AND MONITORING BY FC

Expenditure control within FC is at the level of each connection and is based on direct reference to work activities undertaken as specified in the job pack and work instructions relating to the original quotation design, EOW and any subsequent customer variations. Inconsistencies are investigated to determine the cause, initiate adjustments to payments and identify appropriate actions to feed back into business processes.

FC target and monitor engineering period contract (EPC) productivity levels at GDN and individual contractor level in terms of the average number of jobs completed per day by each team. The information is cascaded down to Operations Manager level in the organisation and is discussed with contractors at monthly review meetings. The definition of a job covers all activities and ranges from one-off domestic services to mains projects. The effectiveness of the productivity measure is, therefore, sensitive to the workload mix which FC judge to be reasonably stable and comparable across networks, but no evidence to confirm this view has been provided. [REDACTED]

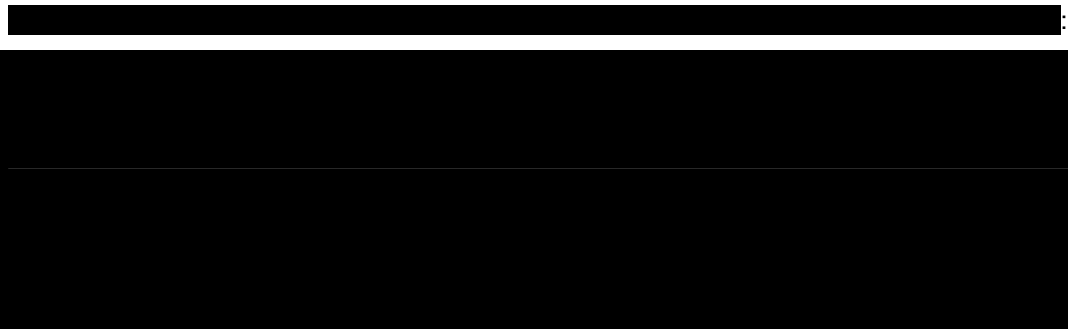
The productivity management process outlined supports achievement of improved performance through effective deployment and management of resources but has limitations without information to confirm the effects on expenditure. We have found no evidence of information to monitor activity expenditure efficiency at any level within FC, e.g. activity unit costs.

We conclude that the information systems employed by NGG and FC do not adequately monitor and manage the efficiency of connections expenditure and performance improvement. It is difficult to assess the degree of efficiency benefit from improved MI systems but, nonetheless, it is considered reasonable to set expectations at an achievable level. **Therefore it is recommended that a 3% adjustment be applied to costs and this adjustment has been incorporated in the detailed analyses.**

A3.4 MANAGEMENT FEE

The Management Fee (MF) is determined in accordance with the terms specified in the SPC and is subject to challenge and review by NGG. Approximately 60% of the MF reflects costs that are directly attributable to the GDNs. Other charges are apportioned to GDNs using drivers such as manpower, quotation volumes and workload. The MF includes a profit element and is substantially recovered via uplifts applied to customer quotations.

The terms of the 2004 SPC Performance Measurement Framework provide an incentive mechanism by adjustment of the MF taking into account performance against a range of KPIs, substantially based on Standards of Service, and 20% of direct personnel costs are at risk in this process. The current Performance Management Framework was introduced in January 2004. Prior to that date performance was assessed against an Efficiency Incentive Matrix that resulted in adjustments to FC Management Costs.



It is presumed that the increase in the level of adjustment from 2003/04 reflects failure to achieve satisfactory Standards of Service performance.

The MF is allocated to activities by the GDNs pro rata to expenditure.

We conclude that the MF charges in accordance with the SPC have been effectively managed by NGG on behalf of the GDNs.

A3.5 PROFIT

Fulcrum profit uplifts are specified on the SPC and have been established with the intent to provide a reasonable overall level of profit at predicted levels of activity. The following table demonstrates the build-up based on costs for a typical GDN.



A3.6 CONNECTIONS NET CAPEX

Connections Net Capex comprises the effects of several factors that influence the recovery of gross expenditure via customer contributions. The effect of allowances is the primary influence, particularly the Domestic Load Connection Allowance (DLCA), but other factors also result in costs that are not recovered. The impact of these factors on Net Capex is considered in the following sub-sections.

A3.6.1 DOMESTIC LOAD CONNECTION ALLOWANCE

The Domestic Load Connection Allowance (DLCA) is subject to periodic review in conjunction with review of standard charges. The allowance is assessed as follows:

- i) Relevant contractor cost items are identified from the schedule of rates. (i.e. specific rate items from for connection and <= 10m pipelay in public highway).
- ii) Usage probability factors are derived from historical workload analysis.
- iii) Usage factors are applied to cost items to derive the weighted average contractor cost.
- iv) Overheads are applied.
- v) Materials items are included with the appropriate materials uplift applied.
- vi) Values are aggregated to GDN level from contractor level.

The DLCA was originally established as a national cost but was subsequently built up for each GDN as indicated above. Mains records are examined in the quotation process to determine eligibility and NGG analysis of quotations has indicated that 97% of new services to existing housing meet the criteria.

The value (£ nominal) of the DLCA by formula year has been confirmed by NGG as follows:



Note 1 - Allowance costs comprise contractor costs, materials and uplifts on a basis consistent with the standard charges. The formula year values are a straight average of the values for the two relevant price periods for each formula year. No assumption has been made re price changes in 2006/07

Note 2 - Changes to contractor pricing agreed when rates are reviewed may be focused on certain sub-sets of rates within the relevant contract schedules. Therefore, year-on-year changes to contract pricing overall will not match the changes for a particular sub-set such as that relating to domestic one-off connections.

A3.6.2 NON DOMESTIC CONNECTIONS ALLOWANCES

During the period up to October 2005, allowances were applied to non-domestic connections. However, the effect of these allowances carries over from that date, to some degree, due to the time lag between quotation and execution of the work.

NGG analysis of quotations has indicated the application of the allowances as follows:

- The proportion of non-domestic quotations attracting an allowance is 65%.
- The proportion of non-domestic quotations attracting the Standard Allowance (@ £89) is 57%.
- The proportion of non-domestic quotations attracting a Bespoke Allowance (average value [REDACTED]) is 8%

A3.6.3 SPECIFIC REINFORCEMENT

The cost of network reinforcement operations necessitated by a specific connection is subject to the Economic Test (ET) based on the demand specified by the customer.

It is understood that virtually all specific reinforcement workload/projects satisfy the Economic Test and do not result in a contribution.

Specific reinforcement workload and expenditure that has not been separately allocated to connections has been included in Mains Reinforcement and other <7 bar build by the GDNs. In these cases, assessment of the effect of specific reinforcement costs on connections Net Capex is not possible.

A3.6.4 EMPLOYER ORDERED WORKS

Employer ordered works (EOW) are essential works additional to the customer quotation scope of work (e.g. mains upsizing, costs resulting from inaccurate records) and are subject to authorisation by GDNs. Analysis by NGG indicates that EOW are associated with all categories of connections, i.e. new housing, existing housing and non-domestic.

EOW costs are not recovered from customers and therefore pass into Net Capex.

A3.6.5 TIME LAG

A significant proportion of Net Capex results from work in progress, i.e. work that was quoted before a price increase but executed after the price change. Connection charges are based on current costs at the time of quotation and, therefore, when costs are increasing under recovery occurs.

Actual direct costs are higher than quoted costs due to the time lag between quotation and construction. FC charges to the GDNs are based on prices current at the time construction work is completed and the cost associated with time lag passes through into activity net expenditure. NGG has indicated that a 1% increase in direct costs, e.g as a result of an EPC rates review, results in a net expenditure increase of £0.25m.

There is no evidence of routine management information to monitor the costs of time lag and initiate timely action to reduce. NGG has provided a detailed assessment of the retained networks costs associated with time lag for the period 2002/03 to 2005/06. The total costs are as follows:

- i) [REDACTED]
- ii) [REDACTED]
- iii) [REDACTED]
- iv) [REDACTED]

The costs in the earlier years reflect the higher workload volumes.

During 2006/07 NGG intend to base quotations on anticipated costs and introduce changes to siteworks terms in order to minimise Net Capex due to time lag. Prior to 2006/07 no action has been taken in the quotation processes to mitigate the cost implications of time lag, although it is presumed that the issue has been apparent as the costs are significant.

A3.6.6 OVERHEADS ASSOCIATED WITH UNACCEPTED QUOTATIONS

NGG has indicated that the domestic quotations acceptance rate has reduced by 5% for the period Jan 04 to Mar 06 and requests are down by broadly the same proportion. Over the same period the I & C and new housing acceptance rate is down by 20% and requests for quotations are increasing. In 2006/07 NGG intend to introduce payment in advance charges for designs and quotations for competitive activities only, i.e. new housing and I & C activities, for the retained networks. This should discourage requests that are for comparison purposes only and will reduce Net Capex in future.

The charging principle is that the overheads associated with providing connections should be recovered from those customers accepting quotations. However, the consequence of consistently high quotation levels and a reducing acceptance rate is that a proportion of overhead is not recovered through charges against the decreasing workload. This cost passes through into Net Capex.

FC has indicated that 29% of the MF relates to the design and quote activity, and the cost of unaccepted quotations equates to 15% of the MF. NGG has provided an assessment of the overheads attributable to unaccepted quotations for the four retained networks and the years 2002/03 to 2005/06, as follows:

- i) [REDACTED]
- ii) [REDACTED]
- iii) [REDACTED]
- iv) [REDACTED]

A proportion of this sum is not recovered via overheads applied to charges.

A3.6.7 REMAINING NET CAPEX (UNDER RECOVERY)

The foregoing components of Net Capex do not account for the total and NGG has indicated that the balance is due to inherent under recovery of costs. NGG suggests that this under recovery results from a cautious/conservative approach to charging which has the effect of ensuring that customers are not overcharged. However, NGG does not indicate that this is a matter of policy and intent.

There is no evidence of routine management information to monitor and control the costs of under recovery. NGG has assessed the total retained networks cost of under recovery at ██████ for the period 2002/03 to 2005/06. No action has been taken to mitigate this cost in the quotation process. It is acknowledged that the degree of any such action should take into account and offset the risk of over charging.

A3.6.8 SUMMARY

The net cost of connections activities incorporates the effects of the factors identified. NGG has provided a detailed analysis of the retained networks connections Net Capex for the period 2002/03 to 2005/06. These figures provided by NGG are combined totals for mains and services which give a reasonable indication of the proportional effect of the factors.

Having reviewed the information provided by NGG and taking account of representations made by GDNs, we have adjusted the proportions for time lag, unaccepted quotations and under recovery. Also, we have taken account of evidence presented which suggests that the balance between mains and services should be amended to reflect the impact of allowances more accurately. In adjusting the values we have ensured that, taking account of relative Net Capex for mains and services, the resulting effect is consistent with the original information provided by NGG.

	Combined %	Adjusted combined %	Estimated mains %	Estimated services %
Allowances	59.6%	59.6%	37.3%	74.0%
Time Lag	16.3%	15.0%	15.0%	15.0%
EOW	6.8%	6.8%	12.7%	3.0%
Unaccepted quotations	0.5%	7.0%	7.0%	7.0%
Underrecovery	16.8%	11.6%	28.0%	1.0%

Table 3A - 1

A3.6.9 CONCLUSIONS

- i) Time lag - We conclude that action should have been taken with effect from 2002/03 to mitigate the cost consequences of time lag and the resultant expenditure is therefore inefficient. A 15% adjustment to mains and services Net Capex has been applied in the analysis process.
- ii) Under recovery - We conclude that action should have been taken with effect from 2002/03 to mitigate the consequences of under recovery of costs in the customer quotation process and the resultant expenditure is therefore inefficient. A 28.0% adjustment to mains Net Capex and a 1.0% adjustment to services Net Capex has been applied in the analysis process.

A3.7 PROCUREMENT – FC EPC ARRANGEMENTS

Separation of connections activities had a direct impact on FC's competitively tendered EPC arrangements and their ability to obtain the best market rates comparable to the rates for this work type prior to separation. Connections work is geographically spread, low volume and is driven by Standards of Service performance. These factors combine to inhibit operational flexibility in terms of forward planning and work scheduling, and hence reduce efficiency. It is to be expected that a premium will have to be paid in order to attract contractors to this work, particularly in periods when contractors are in demand to meet generally high workloads in other gas and utilities activities which would be more profitable.

FC's EPC rates are routinely reviewed yearly in July to take into account general issues, e.g. industry price rises as indicated by Baxter indices and other impacts on the cost of connections activities. Routine indexation is not incorporated into contract terms and conditions but is used as a benchmark in these review negotiations. Additional reviews may be triggered by specific changes in circumstances not foreseen at the routine review.

The cost effectiveness of EPC operations is highly sensitive to work mix, work volume and the demand for competent labour in the utilities contracting market. Any significant and ongoing change in these respects affects profitability and has generated requests for a review of rates to take account of the circumstances and to ensure that continuity of EPC services is not disrupted. The decision by the new owners of the sold networks to take connections activities back 'in house' will address these issues to some degree and should alleviate the upward pressure on costs in due course. In the interim however, the transition is highly disruptive to FC's EPC arrangements as evidenced by rate reviews in July 2005, ranging from [REDACTED] for the networks retained by NGG, triggered by the changed circumstances.

These consequences of the separation of connections activities on the associated EPC rates were not foreseen when the allowances were set and contribute to the increases reflected in unit costs and the overall variances.

We conclude that separation of connections activities and the establishment of 'stand alone' EPC arrangements has had the effect of increasing costs to a degree not anticipated when the allowances were set.

A3.8 FC CLIENT BASE

In 2002 FC established a subsidiary business, Fulcrum Connections Direct (FCD), on a trial basis to undertake connections work for clients other than NGG, substantially independent Gas Transporters. FCD business activities were separated from and not cross-subsidised from NGG connections activities. The trial was eventually abandoned. Costs incurred by FCD in 2002/03 and 2003/04 were £63k and £83k respectively.

FC's only client to date has been NGG with the exception that FC provided services to the new owners of the sold networks between the sale in 2005 and the transfer of these services in-house by the respective network owners.

A3.9 NGG COSTS

NGG evaluates the cost of NGG employees involved in managing the connections process at less than £0.5m p.a. This cost is not capitalised and is not recovered via connections charges.

A3.10 FC RE-STRUCTURING COSTS

NGG has confirmed that all costs associated with restructuring within FC are charged against FC profit and are not passed to NGG in any way. In the year 2002/03, exceptional costs of £11.7m were incurred by FC wholly related to a reorganisation undertaken by the company. These costs were charged against FC profit in that year.

APPENDIX 4 SYSTEM OPERATIONS EXPENDITURE

A4.1 INTRODUCTION

The purpose of this appendix is to provide information regarding NGG Capex expenditure on System Operation between January 2001 and March 2005. During this period all eight GDNs were in the ownership of what was then Transco. During this period the majority of System Operation Capex expenditure within Transco was associated with the Ulysses Project

This appendix also considers the main elements of the forecast Capex April 2005 to March 2013. During this period the main elements are the replacement of the GTMS and the exit of the SOMSA contract for the sold networks.

A4.2 CONTEXT

This appendix has been written specifically for the purpose of being included as a standard appendix supporting each GDN report. It therefore considers the expenditure across all networks on the Ulysses, GTMS replacement & SOMSA Exit projects. If there are specific points to be made for individual GDNs these points are made in the main body of that Network report in section 7.

As expenditure of the Ulysses project covered both Transmission and Distribution we have liaised with TPA Solutions, the consultants acting on the Transmission Price Control Review. Our conclusions present the views of PB Power and are still subject to review by Ofgem.

A4.3 CAPITALISATION POLICY

All of the GDNs are working on the basis that the full project costs will normally be capitalised into the replacement asset. For System Operation these assets are telemetry outstations, communications and control system. Specific comments which apply to these general capitalisation principles are addressed in the main body of the Network reports.

A4.4 SYSTEM OPERATION CAPEX

The table below gives the total reported expenditure on System Operation Capex for all 8 GDNs.

System Operation (All GDNs) All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 year Total	forecast values		
					2005/06	2006/07	5 year Total
Total Actual	5.3	9.8	8.5	23.6	1.2	6.0	30.8
Allowance	5.7	1.0	2.2	8.9	6.4	5.7	21.0
Variance	-0.4	8.8	6.2	14.7	-5.2	0.3	9.8

Table A4 - 1

When reviewing the total reported expenditure on System Operation Capex it can be seen that over the five year period there has been an overspend of £9.8m (43%). This must be viewed in the context that a distribution control system has not been provided by the Ulysses project which was intended under the original project when the allowances were set. The issues impacting this overspend are considered below in relation to the Ulysses project.

A4.5 ULYSSES PROJECT

The Ulysses project was approved in 1999 as a turnkey project to undertake the complete replacement of Transco's System Operation's systems support suite. This included:

- vi) Telemetry Outstations
- vii) Communications Network (for telemetry purposes)
- viii) Control Systems (Both Transmission & Distribution)
- ix) Decision Support Tools
- x) Management Information

The total approved sum for the project was £70.4m, all Capex expenditure.

At the time of the last price review the Ulysses project was experiencing contractual difficulties between Transco and the main supplier [REDACTED] and it was clear in 2001 that the project would not deliver all of the components as originally specified in the approval.

A4.5.1 RE-SANCTION JULY 2001

In July 2001, following a review of the project and the termination of the original supply contract a re-sanction was approved by the Transco Executive Committee.

The key features of this re-sanction were that the project would be split into two main components, the telemetry outstations/ associated communications and the control systems.

The telemetry/communications elements were awarded via a new contract to [REDACTED], whilst the control systems would be delivered by a combination of in-house project management of software development provided by [REDACTED] (offshore development contract).

At this stage the scope of the project remained un-changed although the focus of the control system elements of the project was on the delivery of a replacement control system for Transmission.

The re-sanction approved additional costs of £10m. These revised costs are shown in the table below.

Ulysses Capex Forecast (July 2001) All Figures £m (nominal prices)	2000	2001	2002	2003	Total
[REDACTED] Telemetry	9.4	10.9	8.8	0.0	29.0
Transco Telemetry	0.1	0.8	4.1	0.0	4.9
[REDACTED] non-Telemetry	14.4	1.2	0.0	0.0	15.6
[REDACTED] rebate	0.0	-3.7	-5.3	0.0	-9.0
Control Systems	0.1	1.3	15.3	23.2	40.0
Totals	23.9	10.4	22.8	23.2	80.4

Table A4 - 2

The re-sanction also included a sum of £8.4m for capitalised overheads, which is additional to the sums shown in the table above.

We have not been able to investigate the full details of contractual dispute between Transco and [REDACTED]. However, it must be assumed that a level of inefficiency of expenditure was

associated with the need to cancel the first contract and re-organise the structure/contracts of the project.

A4.5.2 TELEMETRY PROJECT RE-SANCTION MARCH 2003

By March 2003, due to delays from [REDACTED], poor project management and unforeseeable site specific technical issues, the costs for the telemetry elements of Ulysses had increased by £12.4m (excluding overheads) from £39.0m to £51.4m.

It must therefore be assumed that an element of these cost increases should be attributable to inefficient project management. In the re-sanction £5.9m has been attributed to “cost increases”.

A4.5.3 CONTROL SYSTEM RE-SANCTION MAY 2003

In May 2003 it was necessary to obtain approval for a further sum of money in order to complete the control system element of Ulysses. The Re-sanction paper requests an additional £20.9m taking the total to £70.4m.

At this time the plan would still seem to deliver the full scope of the original system control elements which included a GTMS replacement. However, £3.1m cost of work on the Simulator was written off, and this element of the project was de-scoped.

A4.5.4 CONTROL SYSTEM RE-SANCTION JANUARY 2005

This re-sanction reduces the scope of the delivery of the project to only the transmission control system and a reduced scope of the SC95. Although the complication of the network sales process is quoted as a reason for removing the Area GTMS from scope, it is clear the fundamental design of certain elements of the proposed system would not scale without risk to the requirements of a distribution control system. The effect of the re-sanction approval is to reduce the total approved sum to £69.0m (which included an element of £22.7m associated with the abortive work to replace the distribution control system) thus leaving a net Transmission Control System cost of £43.9m(Capex), £1.0m start-up provision for GTMS replacement and £1.4m Opex costs.

A4.5.5 TOTAL PROJECT OUTTURN COSTS

We have had difficulty obtaining a definitive statement from NGG of the total project costs phased between January 2000 and March 2006. Together with TPA solutions we have used the costs outlined in the tables below as the basis for our review.

Ulysses Project Costs										
All Figures £m 2005/06 Prices										
		2000	2001	2002 Qtr1	2002/03	2003/04	2004/05	2005/06	2006/07	Total
Telemetry	Distribution	9.2	10.1	2.6	14.1	8.8	7.2	0.6	0.0	52.5
	Transmission	2.3	3.6	0.7	1.1	1.9	2.9	0.8	0.0	13.3
	Project Total	11.5	13.7	3.2	15.1	10.7	10.1	1.4	0.0	65.8
Control System	Distribution	14.8	3.8	1.9	4.1	0.3	0.2	0.1	0.0	25.1
	Transmission	3.1	3.3	1.6	13.9	8.3	11.1	9.3	3.7	54.3
	Project Total	17.9	7.1	3.5	18.0	8.6	11.3	9.4	3.7	79.3
Project Total		29.4	20.8	6.7	33.1	19.3	21.4	10.8	3.7	145.1

Table A4 - 3

A4.5.6 PROJECT INEFFICIENT COSTS

We have analysed the various project approvals and re-sanctions in order to assess the performance of the project. We conclude that the original Ulysses project was not sufficiently well scoped and understood at the outset. This lack of clarity continued into the [REDACTED] contract and this led to significant inefficiency in their early work and contributed to the difficulties in the relationship with [REDACTED]. The delivery of the distribution control system elements were finally removed from scope. The replacement of the telemetry communications infrastructure appears to have been successful.

From the documentation we have reviewed we have formed opinions about elements of inefficient spending which occurred within the project. Our conclusions are tabulated below.

Inefficiency	Commentary	Range £m Nominal Prices
[REDACTED] Assets & Documentation	As part of the agreement with [REDACTED] to terminate the original Ulysses contract NGG effectively agreed to purchase from [REDACTED] a number of hardware items, documentation and licences at a total cost of £6.4m. We have concluded that this purchase did not provide value for money for these items, further we do not believe they have been effectively put to use in delivering the subsequent project.	6.4
[REDACTED] Contract Closure	NGG state in the re-sanction paper of 2001 that there was a further £100,000 cost to obtaining the contract closure agreement.	0.1
Telemetry Outstation Design, Documentation & Approval	The March 2003 re-sanction paper for the telemetry elements of the project states that due to incomplete and inaccurate site survey data a major exercise was required to gather further information from telemetry sites. We believe this exercise was required very quickly and thus these additional costs were incurred at a further premium to a timely and accurate once off gathering of the appropriate data and designs. The paper states that the total cost for this additional work was £2.7m. We have assessed the inefficiency as a range and used the mid value in our conclusions	0.5 – 2.7
Inefficient Project Management	We believe the chain of re-sanctions (4) associated with this project and associated increasing costs demonstrates poor project management. We believe this is largely due to the complex nature of the project which attempted at the outset to be too wide ranging given the large number of aspirational objectives which were not fully scoped and documented prior to the award of contract.	2.5 – 5.0

Table A4 - 4

We note that the whole of the expenditure (£22.4 nominal) by distribution on the iGMS system must be considered inefficient as the project did not deliver a control system for distribution. We also conclude that a proportion (40%- £1.5m nominal) the inefficient project management costs together with a proportion (80% - £1.3m nominal) of the inefficient telemetry are associated with distribution activities. Taking all three elements together makes a total of £25.2m (£27.6 at 2005/06 prices).

In the table below we have documented our conclusions for the project using the mid-range value of our figures where appropriate. All figures in this table have been inflated to 2005/06 prices.

Efficient / Inefficient Ulysses Expenditure	£ m 2005/06 Prices
Distribution – Efficient Expenditure	50.0
Procurement & Installation of Telemetry Outstations & Communications Systems	50.0
Distribution – Inefficient Expenditure	27.6
Terminated work to deliver distribution control system	24.6
Inefficient telemetry design & site preparations, & associated project management	3.0
Total Distribution - Expenditure	77.6
Total NTS –Expenditure	67.5
Total Project Expenditure	145.1

Table A4 - 5

We have no way of accurately apportioning the inefficient expenditure across the years. We have therefore concluded that the most appropriate way is to phase this expenditure in line with project expenditure in each year see table A4-6.

Allocation of Ulysses (Distribution) Inefficient Expenditure £ m 2005/06 Prices	Pre 2001	2001	2002Q1	2002/03	2003/04	2004/05	2005/06	2006/07	Total
Network									
WW				0.9	0.5	0.4	0.0		1.8
No				0.7	0.4	0.3	0.0		1.4
Sc				0.6	0.3	0.3	0.0		1.2
So				1.1	0.5	0.4	0.0		2.1
EoE				1.2	0.6	0.5	0.1		2.3
Lon				0.6	0.3	0.3	0.1		1.3
NW				0.7	0.4	0.3	0.1		1.4
WM				0.5	0.2	0.2	0.0		1.0
UKD	8.5	4.9	1.6						15.0
Total	8.5	4.9	1.6	6.5	3.2	2.6	0.2		27.6

Table A4 - 6

A4.6 GTMS REPLACEMENT PROJECT

The GTMS replacement project is currently proposed to be a centrally co-ordinated project by NGG on behalf of all GDNs. This proposed project arrangement is covered by a memorandum of understanding between the Network owners and is dependent on the successful tendering of a suitable replacement system acceptable to all parties. Tenders are due back towards the end of June 2006 and these replies together with discussions with the potential suppliers will firm up the nature and cost of the replacement project.

This project is required because the current systems work on obsolete technology with software that was modified to meet the original Transco requirement and has since been modified to meet further requirements. We endorse the view that the system is due for replacement.

The principle currently being adopted given the complex arrangements with the 4 GDN owners is to procure a “like for like” system to match the currently functionality of GTMS using current technology.

Given the previous history of the Ulysses project and other replacement control systems in the former British Gas Corporation/British Gas plc it is clear that such projects can encounter difficulties, particularly when they have to meet the requirements of a number of separate customers.

We believe that the approach of the project to replicating the current functionality will be a good risk management strategy. However, we have concerns that the current collaborative venture whilst potentially minimizing the development costs will certainly increase the project management costs and could increase the delivery risks.

A4.6.1 FORECAST COSTS

The table below shows the total cost forecast for the 8 GDNs for the replacement of the GTMS replacement project. We do not consider the total cost of £16.8m unreasonable for a project of this size. We note that such estimates will be reviewed following the receipt of the tenders currently being prepared by potential contractors.

GTMS Replacement Forecast All Figures £m	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total
Opex Ongoing Costs	0.0	0.0	1.0	2.0	2.0	2.0	2.0	2.0	11.0
Opex One Off Costs	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	1.6
Capex Costs	1.2	7.6	7.7	0.3	0.0	0.0	0.0	0.0	16.8

Table A4 - 7

A4.7 SOMSA EXIT PROJECT

A4.7.1 FORECAST COSTS

We have not had the opportunity within the timescales of this review to investigate fully the plans for SOMSA exit.

We were concerned that the NGG decision to centralise the distribution control operations in the Midlands may have increased costs and risks when the sold networks exit from the SOMSA agreement. We have therefore requested information from NGG regarding the timing of the decision. Having reviewed the reply, we take issue with some aspects of the information presented. Namely NGG claim that the locations of the previous control rooms were not aligned to the geographic areas associated with the sold networks. We believe this argument is not totally valid as the key skills and knowledge of control room staff could more easily be transferred to cover another geographical area than could new recruits in the market place. On balance, however, we do not believe there is evidence that NGG deliberately took the decision to relocate the control rooms knowing the present likely outcome of the SOMSA exit arrangement. We do believe therefore that NGG took these decisions in good faith and took reasonable steps to attempt to minimise the future costs to the gas consumer.

We are of the opinion that the costs of exiting the managed service agreement with NGG are directly related to the sales process and therefore these costs should be considered unnecessary in relation to the price control review. We have therefore adjusted the forecasts to exclude these SOMSA exit costs.

Table A4 - 8

A4.8 RECONCILIATION OF BPQ AND OTHER SUPPLIED FIGURES

We have attempted to reconcile the Capex figures given in the BPQ with the answers given to various supplementary questions. Table A4-9 attempts to show this reconciliation. However as can be seen we have not made a good match in most years.

System Ops All Figures £m Nominal prices	2001	2001 Q1	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
BPQ Total	?	?	5.3	9.8	8.5	1.2	6.0	22.3	15.6	5.9	2.4	1.5	3.8
Ulysses Telemetry	8.1	9.1	2.3	12.9	8.3	7.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Ulysses Control System	13.1	3.4	1.7	3.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
GTMS Replacement Project	0.0	0.0	0.0	0.0	0.0	1.2	7.6	7.7	0.3	0.0	0.0	0.0	0.0
SOMSA Exit	0.0	0.0	0.0	0.0	0.0	0.0	3.2	13.2	9.2	2.4	0.2	0.2	0.2
Other Systems	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Balance	?	?	-1.3	6.9	0.1	7.2	5.7	-1.3	-6.0	-3.4	-2.1	-1.2	-3.5

Table A4 - 9

APPENDIX 5 IS CAPEX (JAN 2001 – MARCH 2005)

A5.1 INTRODUCTION

The purpose of this appendix is to provide information regarding NGG expenditure on IS between January 2001 and March 2005. During this period all eight GDNs were in the ownership of what was then Transco. During this period the majority of IS expenditure within Transco was associated with the central development of software applications and infrastructure.

A5.2 CONTEXT

This appendix has been written specifically for the purpose of being included as a standard appendix supporting each GDN report. It therefore considers the expenditure across all networks on IS systems. If there are specific points to be made for individual Networks these points are made in the main body of that Network report in section 7

A5.3 CAPITALISATION POLICY

Following the merger with National Grid, Transco changed its capitalisation policy to capitalise software development costs.

“Following the Merger with National Grid in October 2003, NGG changed its capitalisation policy in respect of software development costs to capitalise all major projects of this type.

Prior to harmonisation of accounting policies of the former National Grid and Transco businesses, it was policy to capitalise the cost of hardware and associated operating software but not the cost of internal application software development or any purchased software licences, which were treated as operating expenditure. The exception to this was any instance where a ‘turnkey’ solution was provided by a third party supplier”.

This change makes the trending of IS expenditure in the period Jan 2001 to Mar 2005 difficult. Figures are reported in this appendix as declared in the BPQ. Where comments can be made on the impact of this change of capitalisation such comments will be made on particular projects concerned.

A5.4 IS EXPENDITURE

The table below gives the total expenditure on IS for all 8 GDNs. It has not been possible to obtain from NGG a full breakdown of the expenditure for 2001 and 2002Q1 into projects charged to Distribution. We have therefore used the full project costs to provide an estimate of this project breakdown. The totals sum to the full value for these periods as declared by NGG.

IS Capex All Figures £m	PB Power Estimates					Total
	2001	2002 Qtr1	2002/03	2003/04	2004/05 forecast values	
Systems Projects	3.3	4.5	8.3	22.2	13.9	52.3
Infrastructure Projects	26.8	4.8	8.1	8.8	9.2	57.7
Balancing Item BPQs to NGG Data	0.0	0.0	2.0	-1.1	3.2	4.1
Totals	30.1	9.3	18.4	29.9	26.3	114.1

Table A5 - 1

A5.4.1 SYSTEMS PROJECTS

The table below gives the IS systems projects expenditure for all 8 GDNs. It has not been possible to obtain from NGG a full breakdown of the expenditure for 2001 and 2002Q1 into projects charged to Distribution. We have therefore used the full project costs to provide an estimate of this project breakdown. The totals sum to the full value for these periods as declared by NGG.

The main item of expenditure in this category is the expenditure on the Quarterback Programme (QB). QB is considered in more detail in section A5.6.

However is worth noting at this stage that QB costs have been reported in both the Opex and Capex regulatory accounts. A total £51.3 million of software development costs for QB was classed as Opex in the regulatory accounts but has been reclassified as Capex for the purposes of the RAV roll forwards tables in the BPQ submission. We have concluded that in outturn prices the project in total spent £76.8m (£81.7m at 2005/06 prices), comprising £51.3m Opex and £25.5m Capex (those figures charged to Distribution at outturn prices). In reviewing the project we have taken the total project costs into account. However, as this additional "Capex" has not been included in the non-operational Capex tables in the BPQ it does not form part of PB Power's adjustments to costs.

Within the time available it has not possible to explore fully the expenditure for the Gemini Project or Transformation Programme.

We have noted, however, that GEMINI costs are not intended to be charged to the Distribution control. NGG state that this is due to the original Transco transaction model and adjustments are required to the RAV roll forward. We recommend that this issue is investigated further.

The table below shows the IS expenditure reported by NGG that has been charged to the Capex regulatory accounts

IS Systems Capex All figures £m 2005/06 Prices	PB Power Estimates					Total
	2001	2002 Qtr1	2002/03	2003/04	2004/05 forecast values	
GEMINI	0.0	0.0	0.0	4.9	7.0	11.8
JIS Upgrade	0.0	0.0	0.0	0.0	0.8	0.8
QB (Capex Only)	2.8	4.5	5.9	14.3	0.0	27.5
PMR	0.0	0.0	1.7	0.4	0.0	2.2
DRS Replacement	0.0	0.0	0.0	0.5	0.0	0.5
Total Other less than £500k	0.0	0.0	0.7	0.7	1.1	2.5
MINE	0.6	0.0	0.0	0.0	0.0	0.6
Transformation Programme	0.0	0.0	0.0	1.4	5.0	6.4
Totals	3.3	4.5	8.3	22.2	13.9	52.3

Table A5 - 2

A5.4.2 INFRASTRUCTURE PROJECTS

The table below gives the IS infrastructure projects expenditure for all 8 GDNs. It has not been possible to obtain from NGG a full breakdown of the expenditure for 2001 and 2002Q1 into projects charged to Distribution. We have therefore used the full project costs to provide an estimate of this project breakdown. The totals sum to the full value for these periods as declared by NGG.

We are aware that Ofgem have commissioned a review of National Grid's IT expenditure by Compass. We are of the opinion that this review and its conclusions will provide the best statement of NGG's efficiency for expenditure on infrastructure items. At the time of writing we do not have access to the final report from Compass and therefore have not reached a final position on the efficiency of this area of expenditure.

We do note that during the separation of Transco from the gas supply & servicing businesses in BG plc between 1994 and 1996, Transco put in place new desktop and server installations. The large expenditure to replace this infrastructure during 2001 would appear to reflect a reasonable life for this equipment. We should therefore expect a cycle of replacement costs for this equipment again in the period 2006/08.

IS Infrastructure Capex All figures £m 2005/06 Prices	PB Power Estimates					Total
	2001	2002 Qtr1	2002/03	2003/04	2004/05 forecast values	
Servers	6.9	2.3	2.3	2.4	0.8	14.7
Desktop	10.6	0.7	1.5	1.5	1.5	15.8
Data Centre Storage	3.1	0.0	0.0	0.0	0.0	3.1
Telecoms	1.0	0.0	0.0	0.0	0.0	1.0
Office Equipment	2.3	0.9	0.0	0.0	0.0	3.2
Network	0.0	0.0	2.3	2.4	4.0	8.7
Email Upgrades	1.7	0.0	0.0	0.0	0.0	1.7
SAP	1.2	0.7	0.0	0.0	0.0	1.8
Other	0.0	0.3	2.1	2.4	2.9	7.7
Totals	26.8	4.8	8.1	8.8	9.2	57.7

Table A5 - 3

A5.5 IS PROJECT MANAGEMENT AND CONTROL

A5.5.1 GENERAL SUMMARY

We have formed our views on NGG's project management systems from the following sources.

- xi) The BPQ Submission
- xii) Supplementary Question Replies
- xiii) Presentation to Ofgem/PB Power
- xiv) Compass IS Review

In general NGG has in place robust project management controls primarily based on industry standard PRINCE2 methodology. These general project management principles were in place throughout the period being considered. They had a re-launch in 2003 by a new programme called Delivery Excellence (DE). The use of such controls means that in no way can NGG's IS projects be considered 'out of control'. However we are concerned that after reviewing the documentation provided by NGG, there are elements of the control process which are being followed by rote rather than informed use of the methodology techniques: examples of this are given later in this section.

We have found examples, particularly in QB, that issues have caused a change scope/cost for the project. Whilst the formal documentation has been provided for these changes to the appropriate authorising body, there is such a delay to these being processed that a decision to stop or modify the project becomes impossible because expenditure has continued for months before the formal re-sanction has been obtained.

During the presentation by NGG it was explained that formal post investment appraisals (PIA) are no longer normally carried out. Only in exceptional cases would the authorising body request a PIA. It was explained that any Opex savings would be factored into appropriate department's budget forecasts and the accountable manager would be expected to manage within the new forecasts. We consider this practice unsound in that there is no closure of the cause/effect of productivity improvements as part of the regular review process. We are also concerned that the measurement of the performance of a project is tracked against the last

re-sanction, rather than the original approval. Such practices do not impress on the organisation the need to invest in the preparation of the initial business case. Examples we have been given of the Project Exit Reports do not allay our concerns.

The papers provided by NGG are either sanction papers or exit reports and there is nothing in between. It is difficult to say if projects were managed efficiently, however, conclusion can be drawn that NGG do follow a tried and test methodology but that the application of the methodology and principles could be improved. No actual evidence was provided on how they managed success against the original scope, objectives and deliverables and the only evidence on sanction was that they were going back for more money on a regular basis, this suggests that the scoping at the outset was not well founded, due to a continually changing business environment or inefficient project management.

A5.5.2 PROJECT EXIT REPORT (NEXUS SPECIALIST INFRASTRUCTURE)

The Nexus project scope was to move certain core distribution support activities to a new site in Northampton. Included in these activities is a call centre and associated equipment. We were given the exit report for this project as a sample of the documentation they complete at the end of a project.

We have summarised our views on this document below, however, a general comment is that the bulk of the document is based on documentation prepared earlier in the project and cut/pasted into this document with very little added value.

- i) Project deliverables are listed, and stated delivered to the required quality but there was no evidence of what the quality was and how it was measured and who accepted the results.
- ii) Milestone Acceptance Forms used to sign-off milestones contained no view of the expected versus the actual.
- iii) Independent Quality assurance – we would expect to see input from that team.
- iv) Terms of References included the roles and responsibilities of project members but are not considered relevant for this document.
- v) The scoping sections state what had to be done and the and how it was done, but contained nothing about results, i.e. how many people were trained, training material, how it was tested as a success.
- vi) Analysis of team performance is a subjective view, no metrics and no negative comments were present.
- vii) Detailed lessons learnt are statements of what happened, not what went well, what didn't go so well to inform the next set of projects.
- viii) There were no details of any lessons learnt from previous projects and how they were implemented and if they worked.
- ix) Cost benefit analyses only breaks down the cost at the total project level, and that was delivered under a total budget, a further breakdown for cost areas would be required (Capex v Opex performance against the original budget).
- x) Benefits are stated to be being tracked as part of a larger project. However this project has still claimed the benefits with no formal checks that they have been delivered.
- xi) QA commentary is the best part of the document but could go into more detail about the quality reviews and evidence of the different documents used
- xii) Copies of the baseline plan and the end delivered plan should be included in appendices.

- xiii) The exit report doesn't refer back to a sanctioning paper. The only paper we have been provided covers all of project Nexus whereas the exit report cover one element, we find it difficult therefore to fully review the exit report.

The sanctioning paper states a key lesson learnt is that these types of projects go through lots of changes which eventually lead to an overspend of 15% due to the business requested changes against assumptions. The answer has been to add a 15% contingency to the project submission rather than investigating how the project budgeting/scoping processes can be improved.

Overall the majority of the Project Exit Report is a statement of what was required and how the project team went about it, not how the project performed against the baseline with the relevant evidence.

A5.5.3 PROJECT EXIT REPORT (JIS PROJECT)

The JIS project scope was to replace the hardware of the systems which receive and hold the emergency job records prior to the job being closed when the emergency has been "made safe". We were passed the exit report for this project as a further sample of the documentation they complete at the end of a project.

The JIS exit report follows same pattern and most of the comments made above are valid. This suggests that NGG are following a set template for this document and a set process of generating this documentation with very little attention to the purpose or benefit.

A5.6 QB (PROGRAMME)

QB is a software application suite which manages the issue and return of work between the office and the field. The project has a number of benefits;

- i) Passing accurate and up to date information to the field
- ii) Managing the work and field teams effectively
- iii) Capturing work records at source, saving clerical effort improving accuracy and reducing the time taken for updates to return

We support the general principles which the project aims to address and believe that a well structured and efficient project of this nature can increase the efficiency of the organisation and provide enhanced service to customers. We have not been given an exit report or PIA for this project and therefore cannot comment on the final outcome. However the analysis given below will shows that we believe the project may well not have been completely efficient and not all of the benefits may yet have been realised.

QB analysis is made difficult because whilst QB is really a programme of projects, the reporting has been summarised at the programme level. We have not been given split expenditure statements for the individual projects within the programme.

The following statement was provided by NGG in their BPQ submission.

“The software development costs associated with QB field system incurred early in the current price control period were not charged to Capex in the regulatory accounts. However, as this expenditure lead to creation of an asset that facilitates a core regulated service and was a direct substitute for the replacement Private Mobile Radio (PMR) system for which £68m was included in the Final Proposals Capex allowances, this expenditure has been included in our RAV roll forward calculation in the BPQ. The table below quantifies the differences between the regulatory accounts and BPQ RAV roll-forward tables A7.1 and A7.2. (positive values indicate higher values in BPQ RAV tables).”

As Stated by NGG All Figures £m Nominal	2002/03	2003/04	2004/05 forecast values	Total
QB field system	14.3	23.8	13.2	57.7

Table A5 - 4

We understand that the above costs relate to Opex expenditure incurred on QB which NGG now wish to capitalise. We cannot support the statement by NGG

“QB is a direct substitute for the replacement Private Mobile Radio (PMR) system.”

The mobile radio system replacement project essentially provided the communication path for both voice and data transmission between the office and the field. This communication path would be privately provided and would be independent of normal public mobile communications systems. QB is essentially an IS system project which provides systems support to field based staff. In order to work, QB system uses public mobile communications services to pass data between the office and the field. Voice communications are provided again by public services.

A key aspect of a PMR system is the separation from public telephone services. The importance of this separation is that at times of major incident public telephone services can become congested or suspended. At such times it is essential that emergency gas staffs are able to effectively communicate as they may have a part to play in dealing with the incident. NGG have provided a management paper which outlines its decision not to proceed with a scheme independent of the public systems. This paper states that the government has put in place a new national system to provide the emergency services (fire, police, ambulance) with an emergency mobile communications system (Airwave) based on a new form of PMR technology. The government also, after representations were made, allowed certain non emergency organisations to make use of the Airwave system. Transco made a case to government setting out the special needs of the gas emergency service and obtained government approval for Transco to use the Airwave system.

The management paper does not set out the reasons why it was important for the gas emergency service to have access to the Airwave system or the implications of not having such access. It merely states that commercial difficulties prevented Transco reaching agreement with Airwave and that experiences using the public services were good. The management forum or date of such forum receiving the executive report is not known.

The following extract from the 7 July 2005 Report from the London Assembly is a timely reminder of the importance of independent mobile communications.

“It ought to have been predictable that in the event of a major incident in London, mobile telephone networks would become congested and it would become difficult to make or receive telephone calls. It happens every year on New Year’s Eve. It happened on a larger scale after the 11 September attacks in New York. London’s emergency services nevertheless relied to varying extents on mobile phones to communicate internally among their senior officers. This led to some major communications problems on 7 July.”

A5.7 QB (NETWORKS)

QB (Networks) is aimed at distribution teams carrying out both planned and unplanned (emergency) work. The scope of the project includes job details and plans timesheets and work records.

A5.7.1 ORIGINAL APPROVAL JULY 2002

We have not been provided with the original approval and cannot therefore confirm the scope of this approval. We do know from subsequent approvals that the original approved sum was £20.4m. We note from the additional information that by March 2002 (4 months prior to the project approval) £6.7m had already been charged to the Capex account for this project.

Original Case All Figures £m Nominal	One Off Costs
Consultancy	3.9
Contractors	3.0
Transco Business	1.9
Transco IS	1.1
IS Non Specific (including Managed Services)	1.2
Overheads	1.5
Licences	4.6
Capex	3.4
Total One-off Costs	20.6

Table A5 - 5

Whilst the title of this project is “Project QB” we believe that the project scope/costs only relate to the implementation of the systems to support the network distribution teams. Later in the project lifecycle this element of QB is annotated ‘QB (Networks)’.

A5.7.2 RE-SANCTION JANUARY 2003

Although the Lattice Executive Committee approved the original request in July 2002, Transco Executive approved a change of scope to the revised strategic solution in August and September 2002. This revised scope was due to the tactical solution not proving workable. This followed a trial of field systems carried out in July (the same month at the main approval). The trial proved the basic concept, although it didn’t meet wider business strategic requirements. At the same time, consultants (PwC Consulting) concluded that the tactical solution wouldn’t work, so a move to the strategic option was required.

Whilst the Transco Executive (we haven’t been provided with the approval paper) approved a change of scope in August/September 2002 this re-sanction paper was not formally approved until January 2003, therefore project expenditure was continuing from August until January

on the basis of the revised scope, making it far more difficult for the Executive to cancel the project as more expenditure had been committed. It can only be assumed that Executive approval was almost a process step rather than the true decision making step.

At the time of the January paper it was claimed that to stop project would cost £17.6m. The paper makes no mention of the costs incurred in 2001 (£2.8m) and states that the project will spend £2m Capex in 2002 whereas the NGG information is that £4.5m was spent in 2002Q1. Given that the System design would still not be finalised until March 2003 and the first implementation would not start until August 2003 it is our opinion that these levels of expenditure are above the levels of an efficient project.

The revised costs are shown in Table A5 - 6. These show that the total costs have risen to £38m although revised benefit forecasts claim that conservative estimates will deliver an increased NPV of £20.2m.

The strategic impact refers to UMS, Network Services and EMS but doesn't then follow through in costs and benefits. The costs do not include the above and it states they would be subject to separate paper.

The options presented in the paper are not considered to give the Executive a real option

- i) Continue with the increased costs and benefits
- ii) Cancel/ write-off £17.6m
- iii) De-scope - wouldn't reduce costs, lose benefits – not costed

Benefits were to be tracked by putting them into performance contracts. No benefits tracking of loss of FTEs or the benefits was delivered as part of the business improvements.

Original Case All Figures £m Nominal	Original One Off Costs	Revised One Off Costs
Consultancy	3.9	5.7
Contractors	3.0	7.3
Transco Business	1.9	1.2
Transco IS	1.1	1.9
IS Non Specific (including Managed Services)	1.2	3.6
Overheads	1.5	3.3
Licences	4.6	6.9
Further Provision (Opex)		0.5
Capex	3.4	7.5
Further Provision (Capex)		0.2
Total One-off Costs	20.6	38.0

Table A5 - 6

A5.7.3 RE-SANCTION APRIL 2004

We note that yet again the main elements of this re-sanction have been presented to DISSG 6 months before the formal re-sanctioning paper has been presented for approval.

This submission asks for an extra £1.9m and to extend the delivery from January to August 2004 and notes that the delivery of the revised maps software would follow after the delivery of the last software release planned in August 2004. This additional maps software would be delivered as a separate IS project in September. It is not clear if this maps software has been implemented. This suggests that planning was not carried out using forward planning and that dependency on other parts of the business and suppliers were not built into the planning process.

Much of the text of the paper is written in the future tense but should be in the past. The paper talks about having a planned end date of November 2003 when the paper was presented in April 2004. This suggests the text was taken from the paper the DISSG in October 2003 and not put into context. This could mean that most of the money (£1.9m) requested over and above the original sanction would have been spent before approval was given.

A5.7.4 SUMMARY

The project will appear to come in on budget and plan because it was measured against the last sanctioned approved spend and delivery as opposed to the first. Reference was made to original business case but only in terms of being a positive NPV, and doesn't review or say what impact the changes actually have. This is a culture of re-baselining.

Formal decisions to approve a re-sanction based on a change of scope or monies are taken months prior to the paper being submitted to the approval body, by which time it can be assumed that the majority of the request has already been spent and the approval body can only approve the latest paper or stop the projects. Only in extreme circumstances could a close down decision be taken.

Documents provided show that a programme/project methodology is being followed and that all of the documentation is being controlled in a change control framework and has a process for approval; however, the documents provided have some flaws.

A number of re-sanctions together with upward spiralling of costs, suggest that the scope control is weak or the original scoping and design was not sufficient to meet the business requirements or that the business requirements were developing during the project. Whichever the case, the project development cycle seems to be inefficient.

Only two options were put forward as part of the re-sanction, which are either 'do nothing' or 'do the recommended option'. The costs associated with doing nothing are not explained in any of the papers submitted.

A5.8 QB (MARS)

QB (MARS) project is aimed at maintenance staff carrying out both planned and unplanned work. The scope of the project includes job details and work records. The system interfaces with the maintenance records and job scheduling system (MIMS).

A5.8.1 APPROVAL FEBRUARY 2003

The paper was submitted in February 2003 and combines 3 previous papers, although it doesn't say what these papers were or what they requested. References to changes in delivery of scope by combining elements together suggest that not enough effort was employed up front to identify and develop the right strategic solution.

The reasons for scope change are tenuous, and use phrases such as “*delivering an ‘out of the box solution’*” which do not communicate in plain language to the approving body. A fundamental requirement was recognised during the design phase ‘*Scope now includes maps and site drawings (redlining -, a critical safety requirement)*’. We are surprised that this fundamental requirement was not identified at a very early stage. There is no mention that a change of HSE or legislative requirement had forced this change in requirement.

(There was a combined implementation approach which reduces costs but was not shown in the financial analysis.)

We would have expected further options to have been offered in order to deliver the business benefits. This would have demonstrated better that the recommended option using the strategic QB solution provided the best value. The only options considered in the paper were based around versions of the same technology or the timing of the implementation, more wide ranging options do not seem to have been considered

The sanctioning committee was asked to approve the full £16.6m against the £13.1m previously approved. We have not been given the original approval.

The lessons learned listed in the re-sanction are a combination of assumptions, statements of intent, and lessons learned. Where the latter have been identified, the paper does not state how these lessons will be incorporated into the project.

A5.8.2 MARS APPROVAL 2

This re-sanction requests approval for an increase £4.5m up to £23.1m.

The reasons for the additional expenditure are:

- i) An FDGS (definition not known) scope for results and reading
- ii) Compliance with Blackwater

We consider that this rework, particularly for the 'Results and Reading' functionality may well result from a lack of detailed understanding of the requirements at the project initiation stage which delayed the project and hence caused a review of the scope due to the network sales process.

We believe the correct decision was to continue with the project at this stage as to stop the project at this point would have involved a considerable write-off of the expenditure to date.

The need to go back for more money of which £1.9m is programme management and system integration, suggests that the project was probably not be managed efficiently. We believe that not sufficient thought had been given as to how the systems would need to be integrated.

A5.9 PROJECT INEFFICIENT COSTS

We have analysed the various project approvals and re-sanctions in order to assess the performance of the project. We conclude that the original project spent a considerably sum of money investigating the project, however, this seems to have led to an initial widening of scope rather than producing a clear set of deliverables for early implementation.

From the documentation we have reviewed we have formed opinions about elements of inefficient spending which occurred within the project. Our conclusions are tabulated below.

Additionally we have analysed all of the project approvals we have been given to reconcile with the reported expenditure amount. Our reconciliation leaves £8.3m unaccounted. We can not determine if this is wholly efficient or inefficient. We have therefore recorded this expenditure as being inefficient within the range £0m - £8.3m.

Inefficiency	Commentary	Range £m Nominal Prices
Initial Investigations	We conclude that the expenditure incurred during this period was the initial investigations for the financial approval presented to the Lattice Executive in July 2002. We find the level of this expenditure excessive for this element of work	3.5 – 5.5
QB Networks Preparations/Approval/Design	We are unable to account for the expenditure during this period which seems to be further project definition/approval and a small trial in the West Midlands	4 - 12
QB Mars Design Changes	Increased spending due to changes to the scope and design of the proposed QB MARS system	4 – 6
QB Undefined	We have not been able to reconcile the reported expenditure against the project approval sums provided. We are therefore unable to confirm if this expenditure is efficient or inefficient. We have therefore used a mid-point value for this expenditure	0 - 8.3

Table A5 - 7

In the table below we have documented our conclusions for the project using the mid-range value of our figures where appropriate. All figures in this table have been inflated to 2005/06 prices.

QB Efficient/Inefficient Expenditure (Distribution)	£ m 2005/06 Prices
Efficient Expenditure	58.9
QB Networks	40.0
QB MARS	14.8
QB Undefined	4.1
Inefficient Expenditure	22.8
Total Project Expenditure	81.7

Table A5 - 8

The total QB inefficiency has then been pro-rata applied for the Capex elements to a total of £7.9m. For the period April 2002 to March 2005 these figures have been applied to the GDN reported expenditure as a percentage of there total IS expenditure.

Allocation of QB (Capex) Inefficient Expenditure £ m 2005/06 Prices	2001	2002Q1	2002/03	2003/04	2004/05	Total
Network						
EoE			0.2	0.3	0.1	0.6
Lon			0.1	0.2	0.1	0.3
NGN			0.1	0.2	0.1	0.4
NW			0.1	0.2	0.1	0.4
Scot			0.1	0.2	0.1	0.3
South			0.2	0.3	0.1	0.6
WM			0.1	0.1	0.1	0.3
WWU			0.1	0.2	0.1	0.4
UKD	1.7	2.8				4.5
Total	1.7	2.8	0.9	1.7	0.7	7.9

Table A5 - 9

APPENDIX 6 XOSERVE

A6.1 INTRODUCTION

The purpose of this appendix is to provide information regarding the funding by the GDNs of the xoserve one-off expenditure. The majority of this expenditure is required for changes to the IS systems run by xoserve.

A6.2 CONTEXT

This appendix has been written specifically for the purpose of being included as a standard appendix supporting each GDN report. It therefore considers the expenditure across all networks on the xoserve systems.

The company xoserve provides transactional services, information system (IS) support and change management on behalf of the GDNs and the NTS. The primary recipients of xoserve's services are the Networks' customers, the gas shippers. The core services provided by xoserve are delivered mainly through a suite of integrated information systems collectively known as UK Link.

The shareholders in xoserve are a combination of the gas transporters for which xoserve delivers services. The percentage shareholdings were determined by assigning National Grid Transmission an 11% shareholding and then dividing the remaining shareholding amongst GDNs by reference to the share of the total supply points in each network.

The current holdings are given in the table below.

xoserve Shareholders	Holding
National Grid	56.57%
Scotia Gas Networks	17.02%
Northern Gas Networks	10.38%
Wales & West Utilities	10.03%

Table A6 - 1

A6.3 CAPITALISATION POLICY

xoserve has submitted its own BPQ on the basis that all IS system expenditure is an Opex charge in the year in which the expenditure is incurred.

We note that most of the GDNs who are funding these changes are capitalising the charges. Some GDNs have not returned costs within their BPQs which relate to xoserve. We conclude that these GDNs are treating the expenditure other than Capex.

A6.4 XOSERVE FUNDING REQUIREMENTS

The table below gives the total xoserve funding requirement for both IS systems and furniture and fittings and other Capex. The funding for IS projects is not treated as Capex in the xoserve accounts.

xoserve Funding Requirements (All GDNs) All figures £m	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Total	0.1	2.0	5.8	7.7	13.2	15.9	12.2	5.6

Table A6 - 2

xoserve's early plans are to replace the support infrastructure for the systems using the same application software that is currently running. They claim that this is required to minimise the risk of failure due to capacity and support problems;

The operation of the systems is subject to ongoing technical monitoring. In the past six months this monitoring has indicated serious performance and storage issues that must be addressed before they translate into problems that affect the output performance for the business users of the systems and ultimately impact on the competitive gas market.

We believe that this is a reasonable and prudent strategy to ensure continued uninterrupted operation of the xoserve systems and services.

We note that xoserve has prepared initial feasibility studies which consider the strategic and technical issues for the system refreshes. We are not aware if xoserve has produced detailed cost assessments for these technology upgrades. We believe, however, these costs should be reasonably predictable once these project plans have been prepared.

In contrast xoserve's plan to upgrade the application code during the period 2009-2012 will be a much larger project, potentially vulnerable to cost escalations and large project risks. We recommend that this element of xoserve's plan is carefully reviewed, ensuring lessons learnt from the large projects undertaken by NGG such as Ulysses and Quarterback are reviewed and steps taken to ensure the plans minimise the potential for the problems to re-occur.

A6.5 GDN FUNDING PROVISIONS

Not all Networks have included a provision for xoserve funding within their BPQ Capex tables. We are not aware of any reason for these omissions and can find no references within the supporting documentation. Analysing the provisions that have been made, there would seem to be a correlation between xoserve's funding requirement for distribution systems, the GDN shareholding and the level of Capex provision made by those GDNs that have included xoserve Capex. We have therefore estimated the contributions which would be anticipated from the Networks which have not made provision. The results are shown on in figure A6-1.

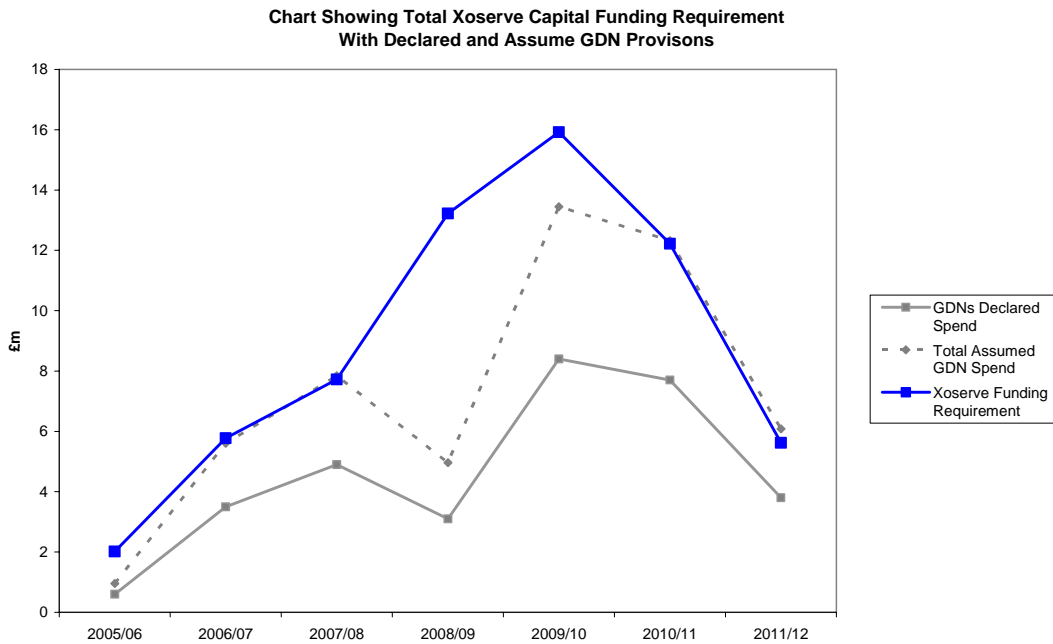


Figure A6 - 1

We conclude that the gap between the xoserve funding requirement and the assumed total Network contributions relates to the project to refresh the GEMINI technology for which NTS would make a sizable contribution.

We would suggest that there should be a more transparent reporting of the linkage between xoserve’s funding requirements and the provisions made in the GDNs Capex forecasts.

A6.6 CONCLUSIONS

We conclude that xoserve’s plans for the technical system refreshes are well made and appropriate. We believe the forecasts are still subject to more detailed financial estimation, which may change these initial forecasts. We are not in a position to provide any more accurate assessment of these forecasts.

We believe that xoserve’s plans for the rewrite of the UK Link systems and other major industry changes (such as GDN interruptions and NTS exit reform) should have particular attention during the main 5 year control review.

APPENDIX 7 LTS PROJECT REVIEW - BATHGATE TO NEWARTHILL AND CARFIN PIPELINE

A7.1 SUMMARY OF PROJECT

Construction of a new NTS offtake at Bathgate; 19km of 1200mm diameter high pressure (25-85 barg) steel pipeline from Bathgate to Newarthill; a PRI at Newarthill and 2.2 km of 450mm HP (19bar) steel pipeline to Carfin to supply the existing 19bar LTS, reinforcing supplies to Central Scotland and providing diurnal storage in the LTS.

This was selected because it was a major project and the scope was greater than the provision in the 2001 allowances.

A7.2 SUMMARY OF FINDINGS

Having examined the data provided for this project, we can confirm that it was sufficient to determine the appropriateness of the expenditure, thereby permitting a determination of the treatment of costs for the RAV.

The network analysis data provided demonstrated that this reinforcement and storage was required for 2005/06 to avoid a failure to supply statutory loads in Central Scotland.

The project justification paper reviewed alternative solutions and we are content that all reasonable alternatives were included. The solution chosen was the best available. However, it is our opinion that this work should have been identified earlier and included in the 2000 plan.

We have examined the procurement processes for the major materials and for the construction works and are content that these were appropriate and efficient.

The project was within a reasonable tolerance of the approved sum.

A7.3 PROJECT REVIEW

A7.3.1 PLANNING AND NETWORK DESIGN

We have reviewed the planning criteria for this project and have concluded that the network analysis data fully supports the need to undertake this project in this year. It is clear that without this project there would have been a failure to supply and a storage shortfall in peak conditions, but we are not clear why this was not identified earlier in the planning process.

A7.3.2 PROCUREMENT

i) Materials

We have reviewed the data provided and this is sufficient for us to determine that the procurement of major materials was conducted in a timely and efficient manner.

ii) Contracts

Four contractors were invited to bid and all submitted prices. The spread of prices was ■■■ million, ■■■ of the lowest bid. Following the due process of post-tender clarification and normalising, the contract was awarded to the lowest bidder. In our view this overall process was sound and resulted in the correct appointment.

However, the costs for the contract work overspent the tendered sum by 18.8% which is which is more than would be expected. This overspend was still within the approved sum for

the project. We have examined the reasons for the overspend and we are content they were necessarily incurred and efficiently undertaken.

iii) **Contract Management**

This project was managed by in house staff. There is no evidence to deduce that this was not conducted efficiently.

A7.3.3 SAFETY AND ENVIRONMENT

On this project the Environmental Impact Statement had identified that mining works and peat bogs existed along the route and they were incorporated properly into the contract documents and were undertaken efficiently.

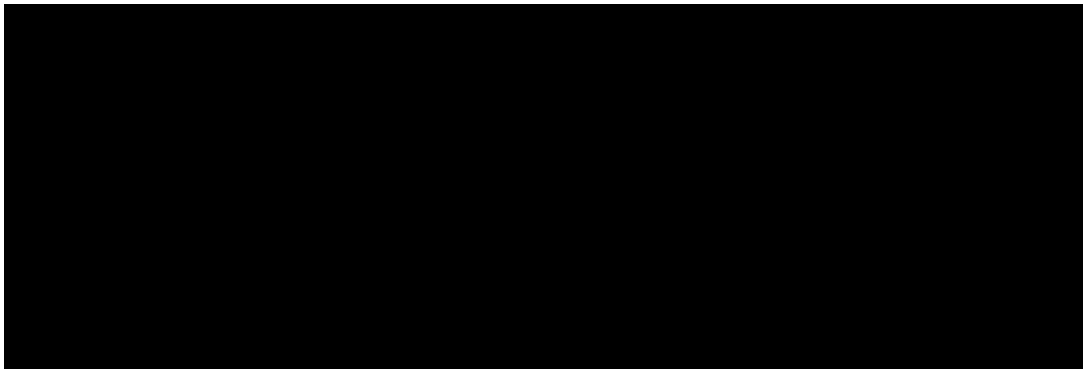
A7.3.4 FINANCIAL CONTROLS

All the due processes for this project were undertaken correctly.

A project review and close out report was prepared for this project. In our views the report did identify the true causes for the overspend of this project and we agree with the findings that this overspend was justified.

A7.4 CONCLUSION

Taking into account all the above we consider that the overall project was necessary and efficient, but could have been identified earlier in the planning process.



APPENDIX 8 REPEX PROJECT REVIEW – CORSEWELL STREET COATBRIDGE

A8.1 SUMMARY OF PROJECT

The construction of 2751M of PE pipe ranging in size from 63mm to 180mm, as replacement for 4312M of SI/CI/ST pipe ranging in size from 1" (ST) to 9". Additionally, included within the scope of the Project were 215 service relays, and 123 service transfers.

The total estimated cost of the Project was £290,830.

NOTE: A gas explosion occurred within the Project area, prior to the commencement of works. This significantly affected the way the project was undertaken, in order to accelerate project completion.

A8.2 DOCUMENTATION PROVIDED FOR AUDIT

The following documentation was provided and reviewed for the completion of this audit:

- Methodology for the selection of mains units for replacement, including plan of pipe `Risk scores` .

- Planning and design sheets exploring alternative design proposals.

- Project estimating sheets.

- Replacement proposals, and proposed abandonment mains plan.

- Authorised LDZ Expenditure Approval Form.

- Project Resubmission following overspend, with supporting papers.

- SAP Internal Order Creation Request.

A8.3 PLANNING AND NETWORK DESIGN

Pipes were selected for replacement in August 2002 using the REP/1 Policy and the draft REP/2 Procedure.

The proposed pipework design has been supplied, with the signed Form `LDZ Expenditure Approval` . indicating that the plans met the planning criteria which applied in October 2002.

The design fulfils the Key Design Drivers recorded in the planning brief.

A8.4 PROJECT COMPLETION

A post completion resubmission of the Project was made in June 2004, due to cost escalation to £598,296 (106% overspend). This was due to a number of factors, but particularly the accelerated completion time demanded, following the explosion on 8th December 2003 in Dryburgh Place, Coatbridge. This was one of the streets proposed for replacement (63mm in 4" SI) within the approved Project

A8.5 CONCLUSION

From the information supplied we can confirm that the Project substantially followed the Planning processes, and that the project planning and design were `signed off` . The design enabled insertion techniques to be exploited wherever possible. And enabled the

abandonment without replacement of a main crossing the Railway. The project was initially authorised under the LDZ delegated authority. The resubmission was made to SLIC, and approved in June 2004.

APPENDIX 9 HSE TARGETS – SGN (SCOTLAND)

A9.1 INTRODUCTION

The rationale is given for the inclusion of each indicator. The acceptability of the response is indicated, or a commentary is added, if it is unacceptable.

A9.2 INDICATORS

i) C18.1 Indicator - Mains Fractures and Corrosion Failures - **Acceptable**

The impact of the replacement programme should result in a reduction of risk to persons and property, from the occurrences of sudden releases of gas caused by mains failures. Thus a reduction of this indicator with time is the desired outcome.

ii) C18.2 Indicator – Gas in Buildings - **Acceptable**

The mains replacement programme should result in a reduction in the recorded instances.

iii) C18.3 Indicator – Public Reported Escapes – **Acceptable**

The mains replacement programme should remove a number of the potential leakage sources, and thus reduce the number of PREs.

iv) C18.4 Indicator – Actioned Repairs - **Acceptable**

Actioned repairs to mains and services will normally result from attending a PRE, where an uncontrolled escape of gas has been detected. The replacement programme will have negligible impact on `damage` repairs, but the overall figure should reduce as the number of PREs due to `condition` reduces.

v) C18.5 Indicator – Average System Pressures - **Acceptable**

Leakage is proportional to pressure. Higher pressures result in proportionally increased leakage and a rise in the number of PRE.

vi) C18.6 Indicator– Leakage - **Acceptable**

The awareness has grown, that leakage of gas from pipes, as well as being potentially dangerous and costly, has the potential to harm the environment through the release of methane, a `greenhouse` gas. The replacement programme should reduce leakage.

vii) C18.7 Indicator – Total Risk (from model) - **Acceptable**

The reduction of risk is the main driver for the replacement programme, and it is important that the overall risk score is forecast to be reducing.