OFGEM

GAS DISTRIBUTION PRICE CONTROL REVIEW

ONE YEAR CONTROL

FINAL REPORT 8

WEST MIDLANDS NETWORK

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1 EXECUTIVE SUMMARY

This report has been prepared by PB Power for Ofgem based on returns made by National Grid Gas (NGG) 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 West Midlands (WM) 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 West Midlands 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, WM's Reported Net Investment and finally PB Power's initial recommendation for Ofgem's Adjusted Net Investment.

Overspend

- WM is forecast to be £11.1m (15%) in excess of the Net Capex allowance for all activities
- The combined mains and services Connections Net Capex is overspent by £21.8m. This is mainly due to the forecasts which were inaccurate because competition in one-off domestic Connections did not develop as expected.

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.

- NGG does not have management information systems that provide detailed analysis of Net Capex performance to ensure effective monitoring and control.

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	**37.3**		**12.2**		**6.1**		**7.1**		**13.5**		**76.2**		
Total GDN Variance	**-11.2**	**-30%**	**8.6**	**71%**	**3.1**	**50%**	**8.4**	**118%**	**2.2**	**17%**	**11.1**	**15%**	
LTS & Storage 3.3.1 and 3.4.1	-14.5	-54%	7.3	212%	**0.4**		1.2	192%	-5.8	-83%	-11.3	-30%	
Mains (General Reinforcement) 5.3.2 and 5.4.1	1.0	63%	-0.5	-38%	**-0.2**	-20%	-1.0	-91%	0.1	6%	-0.6	-10%	
Governors 5.3.2 and 5.4.1	-1.0	-82%	-0.8	-72%	**-0.8**	-73%	-0.3	-28%	-0.7	-63%	-3.6	-64%	
Connections (Mains)[1] 4.3.1 and 4.4.1	2.2		1.3		**1.0**		3.8		1.8		10.1		
Connections – (Services) 4.3.1 and 4.4.1	2.4	199%	3.4	393%	**2.5**	456%	1.4	527%	2.1	818%	11.7	374%	
Other Operational Capex 6.3.1 and 6.4.1	0.6	110%	-0.3	-56%	**-0.1**	-13%	-0.4	-78%	0.5	119%	0.4	17%	
Non-Operational Capex 7.3.1 and 7.4.1	-2.0	-33%	-1.7	-34%	**0.2**	8%	3.6	103%	4.2	113%	4.4	21%	
Reported Net Investment	**26.1**		**20.8**		**9.2**		**15.5**		**15.7**		**87.3**		**18.5**
Wasteful/Unnecessary Actual Expenditure	**2.4**		**2.0**		**1.4**						**5.8**		
Adjustments to Forecasts							**2.2**		**1.2**		**3.4**		**0.6**
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	0.1		0.0		0.1		0.0		0.0		0.2		0.0
Governors 5.3.3 and 5.4.3 and 5.4.4	0.0		0.0		0.0		0.0		0.0		0.0		0.0
Connections (Mains) 4.3.3 and 4.4.3 and 4.4.4	1.0		0.5		0.4		1.9		0.8		4.6		0.2
Connections – (Services) 4.3.3 and 4.4.3 and 4.4.4	0.7		1.0		0.6		0.3		0.4		3.0		0.4
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	0.6		0.4		0.3		0.0		0.0		1.3		0.0
Ofgem Adjusted Net Investment	**23.7**		**18.8**		**7.7**		**13.3**		**14.6**		**78.0**		**17.9**
Allowed Workload	**20.3**		**18.1**		**7.1**		**10.8**		**11.8**		**68.1**		
Additional Workload	**3.5**		**0.7**		**0.6**		**2.5**		**2.7**		**10.0**		
Deferrable/Unplanned but Predictable	**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		

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. The 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. Net Investment is re-stated after re-allocation of mains and services costs and finally the PB Power initial recommendation for Adjusted Net Investment is detailed

Underspend

- The GDN is forecast to be £25m (11%) above the Net Repex allowance for all activities (excluding re-chargeable mains diversions).
- The overspend is due to higher than forecast services volumes, and increased costs.

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 to 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

- Re-allocations from services to mains continue to the end of 2006/07.
- There is no reallocation in 2007/08, assuming a review of the Supplementary Incentive Mechanism and a return to appropriate cost allocation.
- There are adjustments to services reflecting on-going contract and direct labour inefficiencies until 2004/05.
- The 2007/08 adjustment reflects forecast workload reductions.

Net Repex (Excluding Re-chargeable Mains Diversions) All figures £m 2005/06 Prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total		2007/08
Allowed Net Investment	**57.9**		**39.1**		**42.5**		**43.9**		**42.9**		**226.3**		
Total GDN Variance	**-5.1**	**-9%**	**-0.6**	**-2%**	**8.4**	**+20%**	**5.4**	**+12%**	**16.8**	**+39%**	**24.9**	**+11%**	
Mains (as reported) 8.4.1 and 8.5.1	-5.4	-11%	-7.7	-26%	0.9	+3%	-5.6	-16%	4.9	+14%	-13.0	-7%	
Services (as reported) 8.4.1 and 8.5.1	0.7	+11%	7.6	+86%	7.6	+81%	11.1	+113%	12.1	+135%	39.1	+90%	
LTS 9.3.1	-0.4	-100%	-0.5	-100%	-0.1	+0%	-0.1	+0%	-0.1	+0%	-1.2	-134%	
Reported Net Investment	**52.8**		**38.5**		**50.9**		**49.3**		**59.7**		**251.2**		**57.8**
Total GDN Variance (after re-allocation by PB Power)	-5.1	-9%	-0.6	-2%	8.4	+20%	5.4	+12%	16.8	+39%	24.9	**+11%**	
Mains (after re-allocation) 8.4.1 and 8.5.1	-4.9	-10%	-5.5	-19%	3.7	+11%	-1.0	-3%	10.4	+31%	2.7	+1%	
Services (after re-allocation) 8.4.1 and 8.5.1	0.1	+2%	5.4	+62%	4.7	+50%	6.6	+67%	6.6	+73%	23.4	+54%	
LTS 9.3.1	-0.4	-100%	-0.5	-100%	-0.1	+0%	-0.1	+0%	-0.1	+0%	-1.2	-134%	
Restated Net Investment (after re-allocation)	**52.8**		**38.5**		**50.9**		**49.3**		**59.7**		**251.2**		**57.8**
Wasteful/Unnecessary Actual/Forecast Expenditure	**0.2**		**0.5**		**0.5**						**1.2**		
Adjustments to Actual/Forecast							**0.0**		**0.0**		**0.0**		**1.8**
Mains 8.4.3 and 8.5.3 and 8..5.4	0.0		0.0		0.0		0.0		0.0		0.0		0.0
Services 8.4.3 and 8.5.3 and 8..5.4	0.2		0.5		0.5		0.0		0.0		1.2		1.8
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	**52.6**		**37.9**		**50.4**		**49.3**		**59.7**		**250.0**		**56.0**
Mains	46.1		24.2		36.9		33.0		44.4		184.6		
Services & LTS	6.4		13.7		13.5		16.3		15.4		65.3		
Allowed Workload	**6.4**		**11.0**		**11.7**		**13.0**		**12.1**		**54.2**		
Additional Workload	**0.0**		**2.5**		**1.4**		**3.1**		**2.9**		**9.9**		
Deferrable/Unplanned but Predictable	**0.0**		**0.2**		**0.4**		**0.3**		**0.3**		**1.2**		

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.

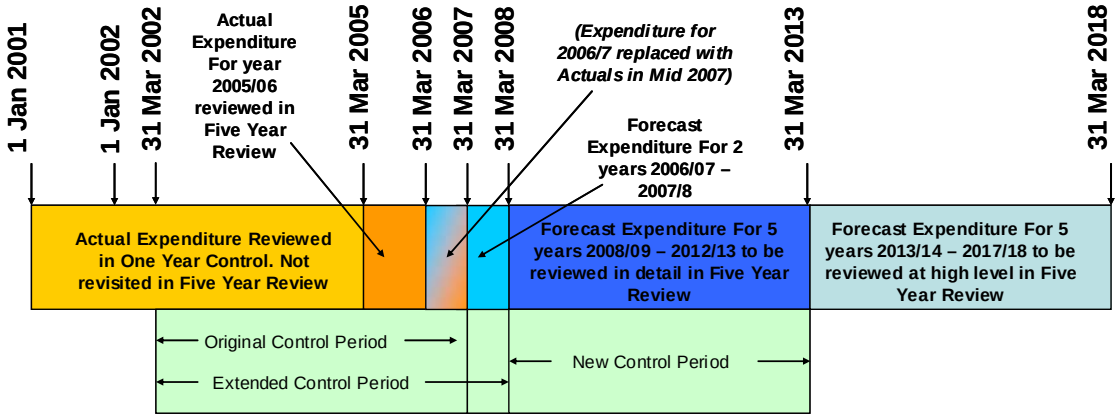

Figure 1

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 WEST MIDLANDS network owned by National Grid Gas.

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 NGG 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 to	Convert from						
	2000	**2001**	**Q1 2002**	**2002/03**	**2003/04**	**2004/05**	**2005/06**
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

- WM have not overspent their LTS Capex allowances.

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

- There are no key issues for LTS

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	**26.8**		**3.4**		**0.0**	**0.7**		**7.0**		**37.8**		
Total GDN Variance	**-14.5**	**-54%**	**7.3**	**212%**	**0.4**	**1.2**	**192%**	**-5.8**	**-83%**	**-11.3**	**-30%**	
Reported Net Investment	**12.3**		**10.7**		**0.4**	**1.9**		**1.2**		**26.5**		**3.1**
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	**12.3**		**10.7**		**0.4**	**1.9**		**1.2**		**26.5**		**3.1**
Allowed Workload	**12.3**		**10.7**		**0.4**	**1.9**		**1.2**		**26.5**		
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 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 in which the project is located.

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	12.3	11.1	0.4	23.8
	Allowance	26.8	3.4	0.0	30.2
	Variance	-14.5	7.7	0.4	-6.4
Contributions	Actual	0.0	0.4	0.0	0.4
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.0	0.4	0.0	0.4
Net	Actual	12.3	10.7	0.4	23.4
	Allowance	26.8	3.4	0.0	30.2
	Variance	-14.5	7.3	0.4	-6.8

Table 12

3.3.2 REASONS FOR VARIANCES

The allowances had included for a major pipeline named Stratford/Maypole at a cost of £49m (nom) to be completed in 2002. (However, had this gone ahead it would have significantly overspent the allowances.) This project has been 'replaced' with 'Lower Quinton to Kings Coughton' at an outturn cost of £20.6m, completed in 2003, which has led to an overall underspend of £6.8m.

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	**12.3**	**10.7**	**0.4**	**23.4**
Wasteful/Unnecessary Expenditure	**0.0**	**0.0**	**0.0**	**0.0**
Ofgem Adjusted Net Investment	**12.3**	**10.7**	**0.4**	**23.4**
Allowed Workload	**12.3**	**10.7**	**0.4**	**23.4**
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, West Midlands' processes were reviewed to determine whether they had appropriate procedures for planning, procurement, contract management and financial controls.

For WM Network one project was selected for detailed review;

Project Selection

This project was selected because it was a major pipeline project and managed to remain within budget at a time when other projects were overspending.

Project Description

The Construction of 18.2km of 1200mm diameter high pressure steel pipe from Lower Quinton block valve to Kings Coughton AGI: the construction of a volumetric offtake at Lower Quinton and modifications to Kings Coughton AGI. This project provided 87% of the diurnal storage shortfall of the West Midlands LTS.

Summary of Findings

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 statutory loads and a shortage in diurnal storage in the LTS for peak conditions.

A Project Review and Close Out report was prepared for this project. In our view this project was managed well and completed to budget.

Conclusion

We consider that the overall project was necessary and efficient.

The full report can be seen in Appendix 7.

3.3.3.2 Network Planning and Design

National Grid Gas operates four GDNs : London, East of England, West Midlands and North West. London and EoE GDNs contain the North Thames and East Midlands LDZs respectively with the Eastern LDZ split between London and East of England GDNs.

Replies have been supplied for all questions and the level of data provided gives a comprehensive response. Replies were provided for National Grid Gas as a whole and, where appropriate, separate information was given for each GDN.

Having examined the data provided for the National Grid Gas, we can confirm that it was sufficient to ascertain the planning capability within each GDN.

The conclusion is that the planning works for development of the National Grid Gas networks and in particular that of the local transmission and storage system has been carried out in a competent manner.

However, the “Final” diurnal storage requirements used for the LDZs do not match those predicted by the Storage Simulation Model by often quite considerable amounts and, although the process includes for some “smoothing” and “sensitivity analysis”, no evidence has been produced explaining why there is so much deviation from the Storage Simulation Model. We consider this to be of some concern and this will be followed up in the main review.

The full report can be seen in Appendix 1.

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	12.3	11.1	0.4	1.9	1.2	26.9
	Allowance	26.8	3.4	0.0	0.7	7.0	37.8
	Variance	-14.5	7.7	0.4	1.2	-5.8	-10.9
Contributions	Actual	0.0	0.4	0.0	0.0	0.0	0.4
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.0	0.4	0.0	0.0	0.0	0.4
Net	Actual	12.3	10.7	0.4	1.9	1.2	26.5
	Allowance	26.8	3.4	0.0	0.7	7.0	37.8
	Variance	-14.5	7.3	0.4	1.2	-5.8	-11.3

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)

A pipeline from Evesham to Hanbury was allowed in the 2001 plan. This has not been constructed and largely contributes to the £4.5m underspend in this period.

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	12.3	10.7	0.4	**1.9**	**1.2**	**26.5**	**3.1**
Adjustments	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	**0.0**
Ofgem Adjusted Forecast Net Investment	12.3	10.7	0.4	**1.9**	**1.2**	**26.5**	**3.1**
Allowed Workload	12.3	10.7	0.4	**1.9**	**1.2**	**26.5**	
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 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.

A pipeline from Evesham to Hanbury was allowed in the 2001 plan. This has not been constructed and largely accounts for the £4.5m underspend in this period.

3.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

The expenditure shown in 2007/08 is £3.1m which is largely for small unnamed projects. This is deemed to be allowable.

3.5 FORECAST TRENDS (2002 TO 2013)

3.5.1 HIGH LEVEL TREND

In the period 2006/07 to 2012/13 there is a programme of LTS capital totalling £16m:

i) Pipelines £0m

ii) PRIs £12m

iii) Storage £4m

These PRI projects are properly listed and described. These projects may be revisited in the main review.

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 WM.
- 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. These show the initial Allowed Net Investment from the last control, WM's Reported Net Investment and finally PB Power's recommendation for Ofgem's Adjusted Net Investment.

Overspend

- WM is forecast to be £21.8m (709%) 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.
- NGG 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

- £4.3m of Connections expenditure has been assessed as inefficient.

Categorisation of Forecast Expenditure

- £3.3m 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	**1.2**		**0.8**		**0.5**		**0.3**		**0.2**		**3.1**		
Total GDN Variance	**4.6**	**371%**	**4.6**	**558%**	**3.5**	**686%**	**5.2**	**1765%**	**3.8**	**2016%**	**21.8**	**709%**	
Reported Net Investment	**5.9**		**5.5**		**4.1**		**5.5**		**4.0**		**24.9**		**2.6**
Wasteful/Unnecessary Actual Expenditure	**1.7**		**1.6**		**1.0**						**4.3**		
Adjustments to Forecasts							**2.2**		**1.2**		**3.3**		**0.6**
Ofgem Adjusted Net Investment	**4.2**		**3.9**		**3.1**		**3.3**		**2.9**		**17.3**		**2.0**
Allowed Workload	**2.7**		**3.2**		**2.5**		**2.8**		**2.0**		**13.3**		
Additional Workload	**1.5**		**0.7**		**0.5**		**0.5**		**0.9**		**4.0**		
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 WM.

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.

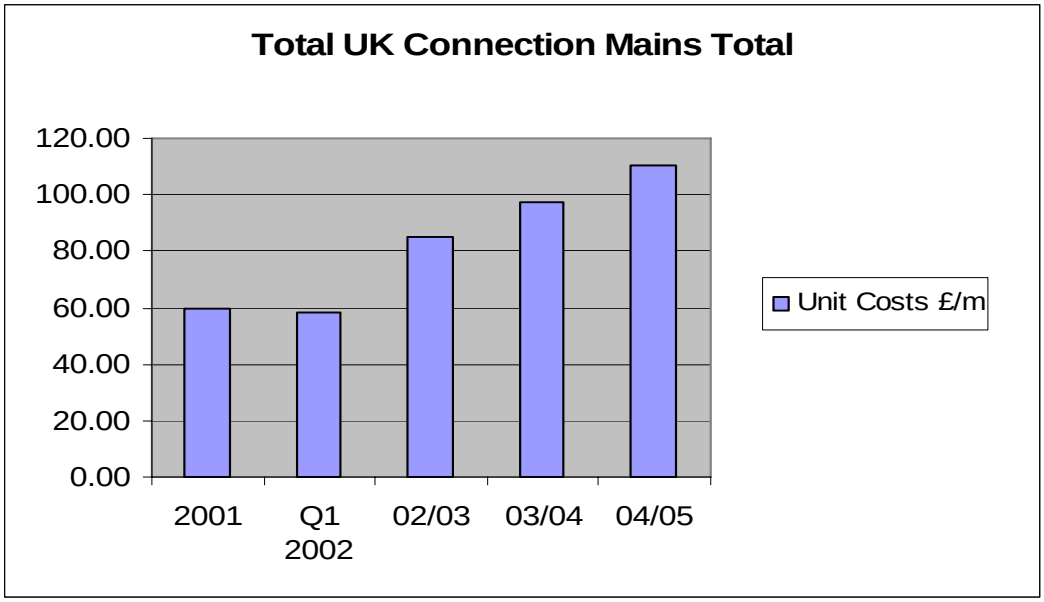

Figure 2

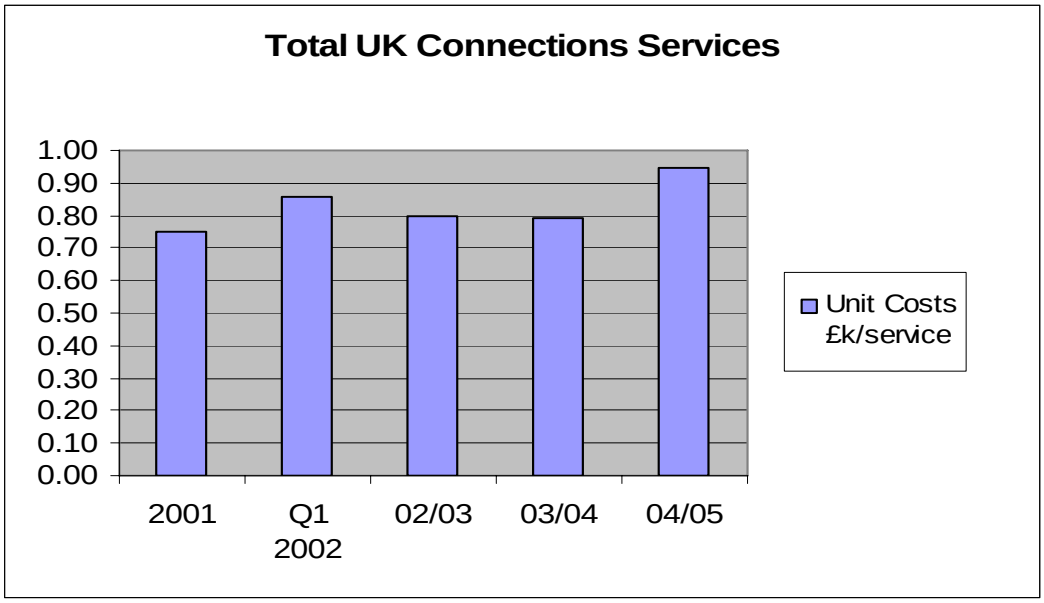

Figure 3

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

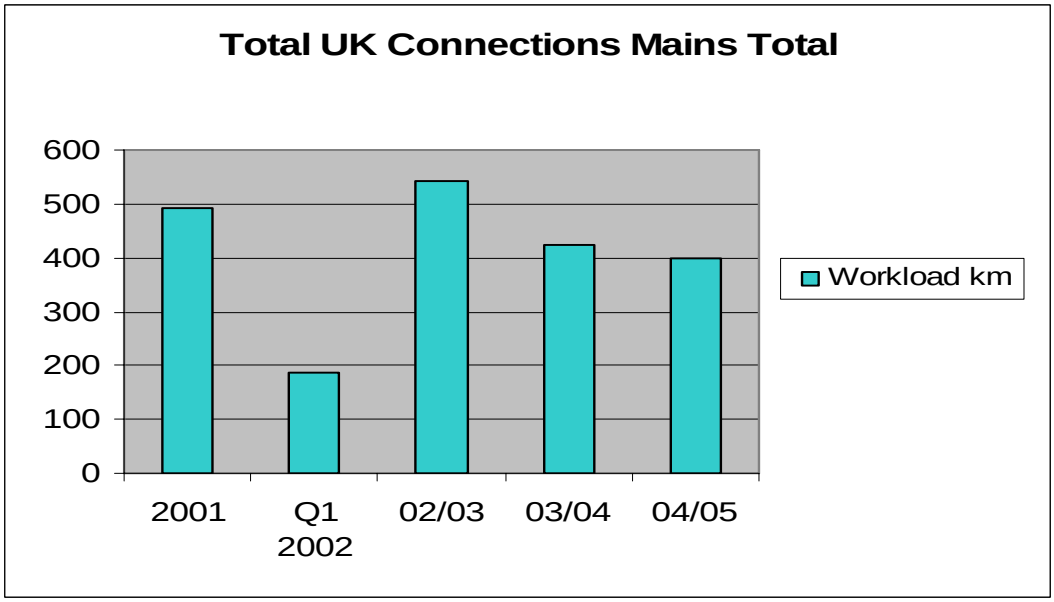

Figure 4

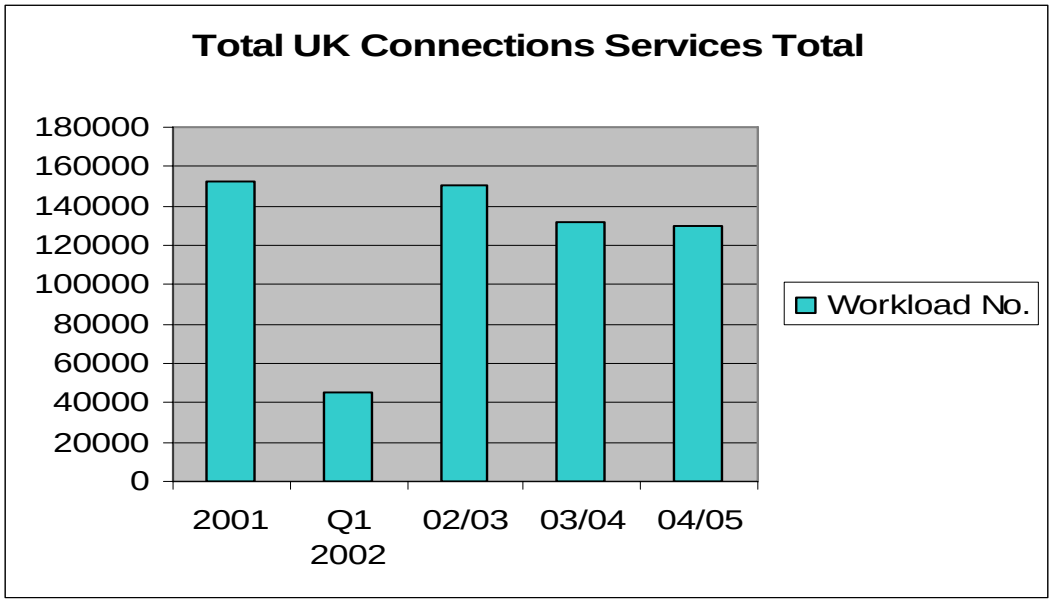

Figure 5

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 35% and -42% respectively.

Contributions for the 3 year period are below the allowance and the variance is -8%.

Connections (Mains) All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross (£m)	Actual	4.0	4.7	5.4	14.1
	Allowance	3.7	3.4	3.3	10.5
	Variance	0.3	1.3	2.1	3.7
Contributions (£m)	Actual	1.8	3.5	4.4	9.7
	Allowance	3.7	3.5	3.3	10.5
	Variance	-1.9	0.0	1.1	-0.8
Net (£m)	Actual	2.3	1.2	1.0	4.5
	Allowance	0.0	0.0	0.0	0.0
	Variance	2.2	1.3	1.0	4.5
Workload (km)	Actual	26	23	23	72
	Allowance	43	42	40	125
	Variance	-17	-19	-17	-53

Table 19

4.3.1.2 Connections – Services

The gross expenditure and workload variances for the 3 year period are 41% and 54% 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 18% below the allowance.

The Net Capex variance is £8.3m. 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) All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross (£m)	Actual	7.9	7.1	5.9	20.9
	Allowance	5.5	4.9	4.3	14.7
	Variance	2.4	2.2	1.6	6.2
Contributions (£m)	Actual	4.3	2.8	2.8	9.9
	Allowance	4.3	4.0	3.7	12.0
	Variance	0.0	-1.2	-0.9	-2.1
Net (£m)	Actual	3.6	4.2	3.1	10.9
	Allowance	1.2	0.9	0.6	2.6
	Variance	2.4	3.4	2.5	8.3
Workload (No.)	Actual	13,976	8,561	7,861	30,398
	Allowance	6,904	6,721	6,161	19,786
	Variance	7,071	1,840	1,700	10,612

Table 20

4.3.2 REASONS FOR VARIANCES

4.3.2.1 NGG explanations

NGG has provided explanations for variances associated with Connections activities which are summarised as follows:

i) Competition has not developed in the domestic Statutory Connections market as expected and the forecast erosion of market share did not materialise.

ii) Inadequate provision for Connections allowances, particularly the Domestic Load Connection Allowance (DLCA), resulting in over estimation of customer contributions.

iii) High overheads associated with operating a separated Connections business were not foreseen and not reflected in the allowances.

iv) FC's high cost of quotations and reducing acceptance rates, included in the Management Fee.

v) Time lag on price changes.

vi) FC EPC rates rose in excess of RPI and in excess of the provision in the allowances.

vii) Only a small proportion of specific reinforcements fail the economic test and WM funds virtually all of this work.

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 £131/connection whereas as the actual average Net Capex is £359/connection.

The principal component of Net Capex is the DLCA and NGG has indicated that the allowance applies to 97% of new services to existing housing at an average estimated cost of £500/connection. WM new services to existing housing total 18748 for the period 2002/03 to 2004/05. This is indicative of £9.1m actual cost attributable to the DLCA for the 3 year period.

On request, WM has since provided the following detailed cost assessment of the DLCA which indicates costs marginally in excess of the original estimate.

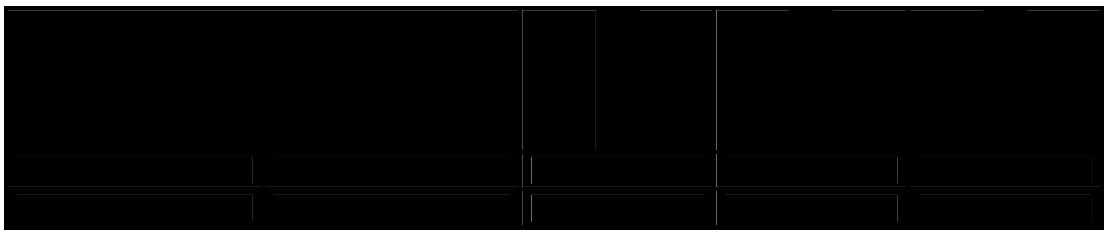

Table 21

The DLCA cost estimate at £9.1m over the period to 2004/05 represents 83% 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	**5.9**	**5.5**	**4.1**	**15.4**
Wasteful/Unnecessary Expenditure	**1.7**	**1.6**	**1.0**	**4.3**
Connections Mains	1.0	0.5	0.4	2.0
Connections Services	0.7	1.0	0.6	2.3
Ofgem Adjusted Net Investment	**4.2**	**3.9**	**3.1**	**11.1**
Allowed Workload	**2.7**	**3.2**	**2.5**	**8.4**
Additional Workload	**1.5**	**0.7**	**0.5**	**2.7**
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 WM and the other GDNs. The Service Provider Contract (SPC) formed the basis for the contractual relationship between WM 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 WM, 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 has been synthesised by NGG into the activities format required by the BPQ. 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 on 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 NGG) 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.

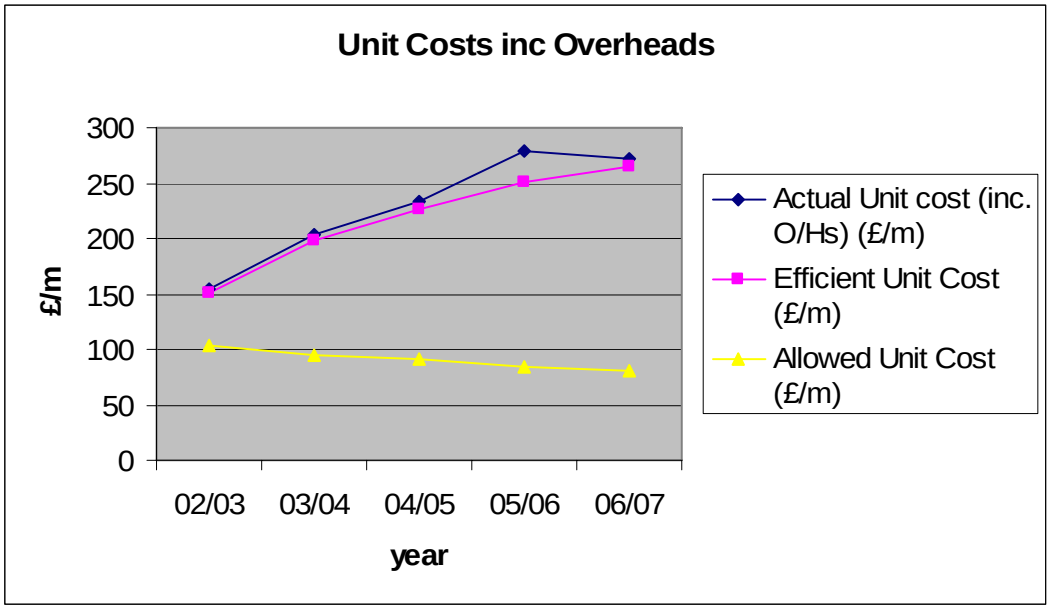

Figure 6

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.

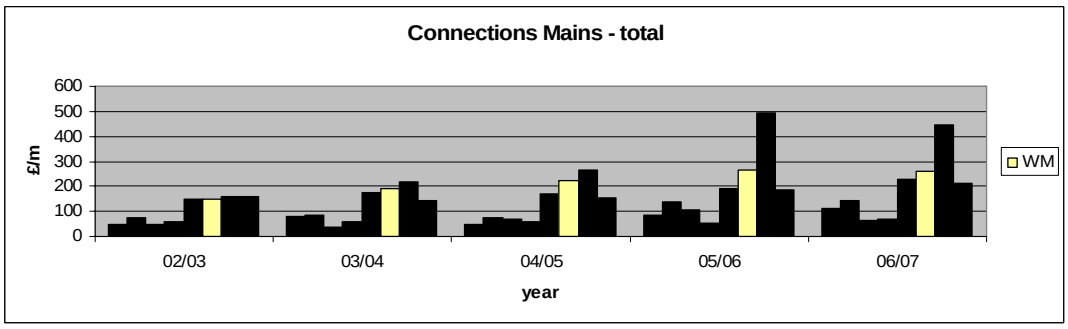

Figure 7

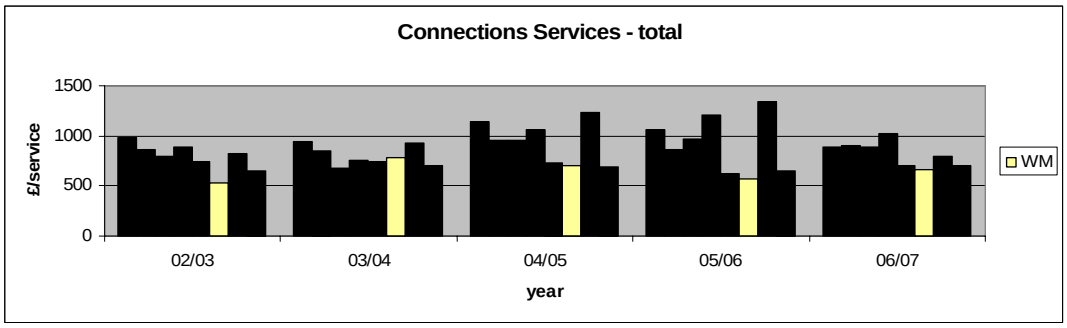

Figure 8

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.

[redacted]

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 NGG 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.

The Report on Procurement and Logistics - 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 - 2003/04 -10%

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	4.0	4.7	5.4
Actual Contributions	1.8	3.5	4.4
Actual Net Capex	2.3	1.2	1.0
% of Net Capex Invalid Due to Under Recovery	43%	43%	43%
Actual Gross Capex	4.0	4.7	5.4
Contribution Adjusted for Under Recovery	2.8	4.0	4.8
Net Capex	1.3	0.7	0.6
% of Gross Capex which is Inefficient	3%	3%	3%
Efficient Gross Capex	3.9	4.6	5.2
Efficient Contributions	2.7	3.9	4.7
Efficient Net Capex	1.3	0.7	0.5
Actual Volume (km)	26	23	23
Efficient Unit Cost (£/m)	151	198	227

Table 23

Analysis Summary – Total Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	2.3	1.2	1.0
Wasteful/Unnecessary Expenditure	1.0	0.5	0.4
Allowed Workload	1.3	0.7	0.5
Additional Workload	0.0	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	7.9	7.1	5.9
Actual Contributions	4.3	2.8	2.8
Actual Net Capex	3.6	4.2	3.1
% of Net Capex Invalid Due to Under Recovery	16%	16%	16%
Actual Gross Capex	7.9	7.1	5.9
Contribution Adjusted for Under Recovery	4.9	3.5	3.3
Net Capex	3.0	3.6	2.6
% of Gross Capex which is Inefficient	3%	10%	3%
Efficient Gross Capex	7.7	6.4	5.7
Efficient Contributions	4.7	3.2	3.2
Efficient Net Capex	2.9	3.2	2.5
Actual Volume (No.)	13,976	8,561	7,861
Efficient Unit Cost (£/service)	548	745	727

Table 25

Analysis Summary – Total Services All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	3.6	4.2	3.1
Wasteful/Unnecessary Expenditure	0.7	1.0	0.6
Allowed Workload	1.5	2.5	2.0
Additional Workload	1.5	0.7	0.5
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	5.9	5.5	4.1	**5.5**	**4.0**	**24.9**	**2.6**
Adjustments	1.7	1.6	1.0	**2.2**	**1.2**	**7.6**	**0.6**
Connections Mains	1.0	0.5	0.4	1.9	0.8	4.6	0.2
Connections Services	0.7	1.0	0.6	0.3	0.4	3.0	0.4
Ofgem Adjusted Forecast Net Investment	4.2	3.9	3.1	**3.3**	**2.9**	**17.3**	**2.0**
Allowed Workload	2.7	3.2	2.5	**2.8**	**2.0**	**13.3**	
Additional Workload	1.5	0.7	0.5	**0.5**	**0.9**	**4.0**	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	

Table 27

[redacted]

Traffic Management Act (TMA)

We understand that NGG's forecasts for Connections activities do not include 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 118% and -39% respectively.

Contributions for the 2 year period are 18% in excess of the allowance.

Connections (Mains) All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross (£m)	Actual	4.0	4.7	5.4	6.1	6.3	26.5
	Allowance	3.7	3.4	3.3	3.0	2.7	16.1
	Variance	0.3	1.3	2.1	3.2	3.6	10.5
Contributions (£m)	Actual	1.8	3.5	4.4	2.3	4.6	16.5
	Allowance	3.7	3.5	3.3	2.9	2.7	16.1
	Variance	-1.9	0.0	1.1	-0.6	1.8	0.4
Net (£m)	Actual	2.3	1.2	1.0	3.8	1.7	10.1
	Allowance	0.0	0.0	0.0	0.0	-0.1	-0.1
	Variance	2.2	1.3	1.0	3.8	1.8	10.1
Workload (km)	Actual	26	23	23	22	23	117
	Allowance	43	42	40	38	36	199
	Variance	-17	-19	-17	-16	-13	-82

Table 28

Connections - Services

The gross expenditure and workload variances for the 2 year period are 66% and 67% 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 16% above the allowance which reflects the workload variance.

Connections (Services) All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross (£m)	Actual	7.9	7.1	5.9	4.9	6.3	32.0
	Allowance	5.5	4.9	4.3	3.5	3.2	21.4
	Variance	2.4	2.2	1.6	1.4	3.0	10.6
Contributions (£m)	Actual	4.3	2.8	2.8	3.2	3.9	17.1
	Allowance	4.3	4.0	3.7	3.2	3.0	18.3
	Variance	0.0	-1.2	-0.9	0.0	1.0	-1.1
Net (£m)	Actual	3.6	4.2	3.1	1.6	2.3	14.9
	Allowance	1.2	0.9	0.6	0.3	0.3	3.1
	Variance	2.4	3.4	2.5	1.4	2.1	11.7
Workload (No.)	Actual	13,976	8,561	7,861	7,997	8,858	47,253
	Allowance	6,904	6,721	6,161	5,263	4,845	29,894
	Variance	7,071	1,840	1,700	2,734	4,014	17,359

Table 29

4.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

We presume that the forecasts for 2005/06 and 2006/07are 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

Following the networks sales process in 2005 NGG implemented the decision to in-source its' domestic standard charge activities which will bring a substantial proportion of Connections Net Capex, associated with the DLCA, under direct control. Connections activities undertaken by FC now cover non standard domestic work, all I & C work and multiple new housing works only. Currently, FC continues to provide these services under the terms of existing SPC but NGG has indicated that this policy will come under review in due course. Any decision to make further changes will be informed by necessary experience of the new arrangements.

The in-source strategy included re-tendering the TERM contracts in 2004/05 to enable both Capex and Repex activities to be undertaken by the same contractor and with a dedicated centralised administrative support function, thereby establishing the potential for operational efficiency. An immediate outcome of this change was a reduction in overall costs of 6% for a typical domestic service compared with FC costs (compared to the equivalent FC charges, following the July 2005 extension to FC's EPC contracts).

The in-source arrangements are expected to deliver efficiency benefits and consequent reductions in the cost base but no detailed assessment has been provided in this respect. 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 2006/07are 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: 05/06 -10%

Services : no adjustments applied.

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	4.0	4.7	5.4	6.1	6.3
Actual Contributions	1.8	3.5	4.4	2.3	4.6
Actual Net Capex	2.3	1.2	1.0	3.8	1.7
% of Net Capex Invalid Due to Under Recovery	43%	43%	43%	43%	43%
Actual Gross Capex	4.0	4.7	5.4	6.1	6.3
Contribution Adjusted for Under Recovery	2.8	4.0	4.8	3.9	5.3
Net Capex	1.3	0.7	0.6	2.2	1.0
% of Gross Capex which is Inefficient	3%	3%	3%	10%	3%
Efficient Gross Capex	3.9	4.6	5.2	5.5	6.1
Efficient Contributions	2.7	3.9	4.7	3.5	5.1
Efficient Net Capex	1.3	0.7	0.5	2.0	1.0
Actual Volume (km)	26	23	23	22	23
Efficient Unit Cost (£/m)	151	198	227	251	264

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	2.3	1.2	1.0	3.8	1.7
Wasteful/Unnecessary Expenditure	1.0	0.5	0.4	1.9	0.8
Allowed Workload	1.3	0.7	0.5	2.0	1.0
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 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	7.9	7.1	5.9	4.9	6.3
Actual Contributions	4.3	2.8	2.8	3.2	3.9
Actual Net Capex	3.6	4.2	3.1	1.6	2.3
% of Net Capex Invalid Due to Under Recovery	16%	16%	16%	16%	16%
Actual Gross Capex	7.9	7.1	5.9	4.9	6.3
Contribution Adjusted for Under Recovery	4.9	3.5	3.3	3.5	4.3
Net Capex	3.0	3.6	2.6	1.4	1.9
% of Gross Capex which is Inefficient	3%	10%	3%	2%	2%
Efficient Gross Capex	7.7	6.4	5.7	4.8	6.1
Efficient Contributions	4.7	3.2	3.2	3.4	4.2
Efficient Net Capex	2.9	3.2	2.5	1.3	1.9

Actual Volume (No.)	13,976	8,561	7,861	7,997	8,858
Efficient Unit Cost (£/service)	548	745	727	595	691

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	3.6	4.2	3.1	1.6	2.3
Wasteful/Unnecessary Expenditure	0.7	1.0	0.6	0.3	0.4
Allowed Workload	1.5	2.5	2.0	0.9	1.0
Additional Workload	1.5	0.7	0.5	0.5	0.9
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

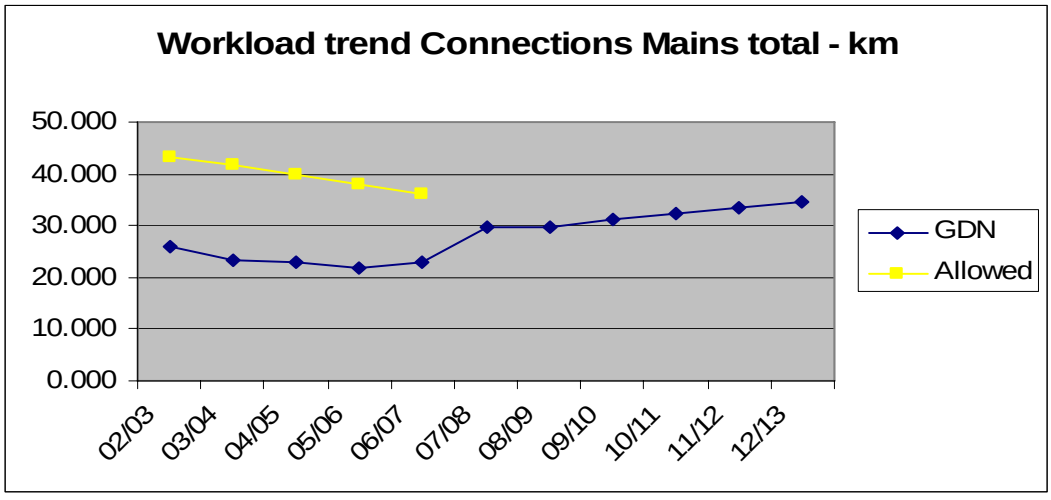

Figure 9

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

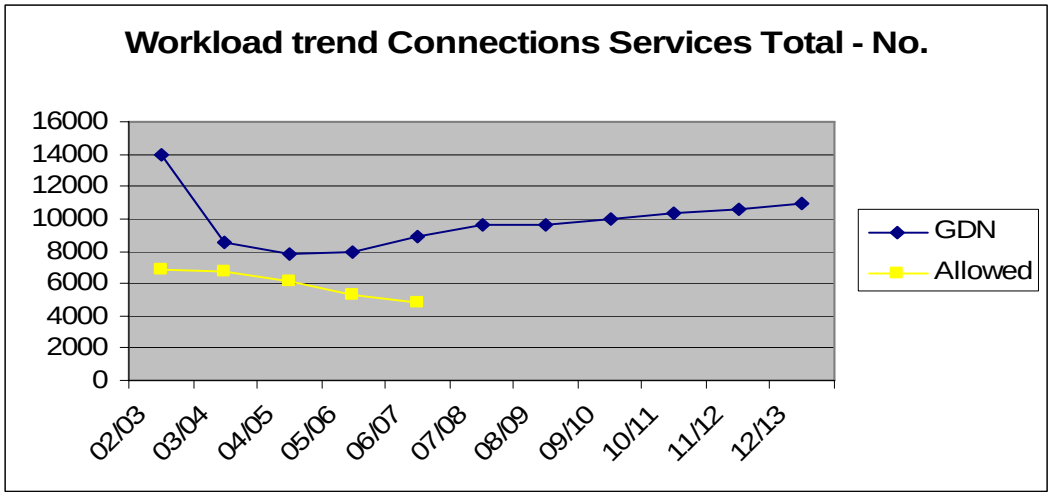

Figure 10

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 NGG 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 -£0.6m.

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.

WM's forecast levels of contributions for 2007/08 have increased substantially compared to the average levels for the period 2002/03 to 2006/07. Mains contributions are increased from 62% of actual gross expenditure to 96% and services contributions are increased from 53% to 68%. The underlying assumptions for these changes have not been explained by NGG but the forecasts address the Net Capex inefficient recovery of costs issues to some degree.

Gross Capex - Mains

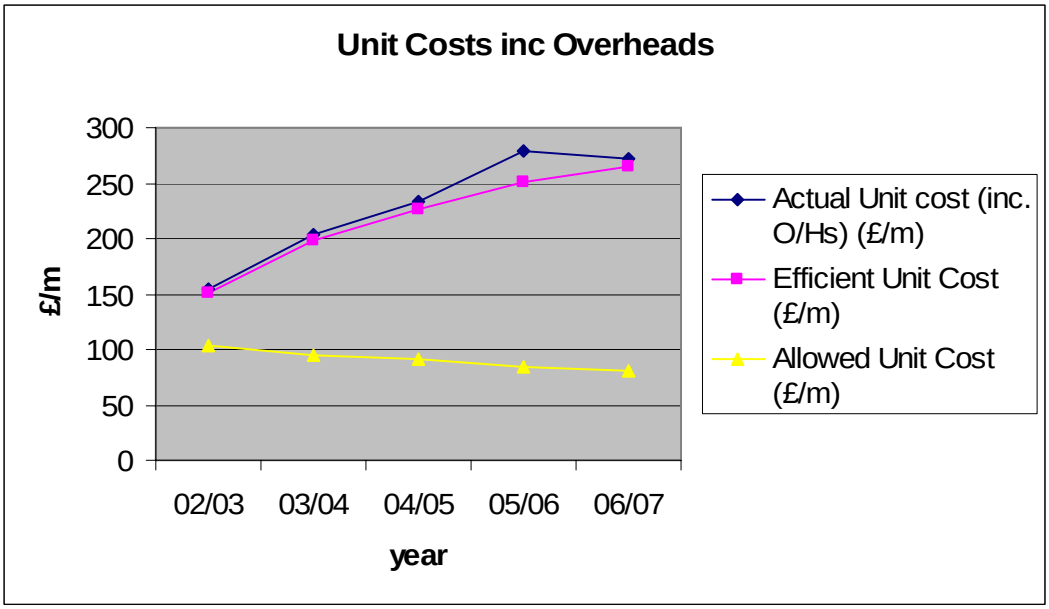

Figure 11

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 £250/m to £280/m.

The mid-point cost of £265/m applied to the forecast workload at 29.6 km results in an indicative 2007/08 expenditure forecast of £7.8m, including overheads, for Connections total mains. Compared to the reported forecast at £8.6m, the variance is -£0.8m.

Gross Capex - Services

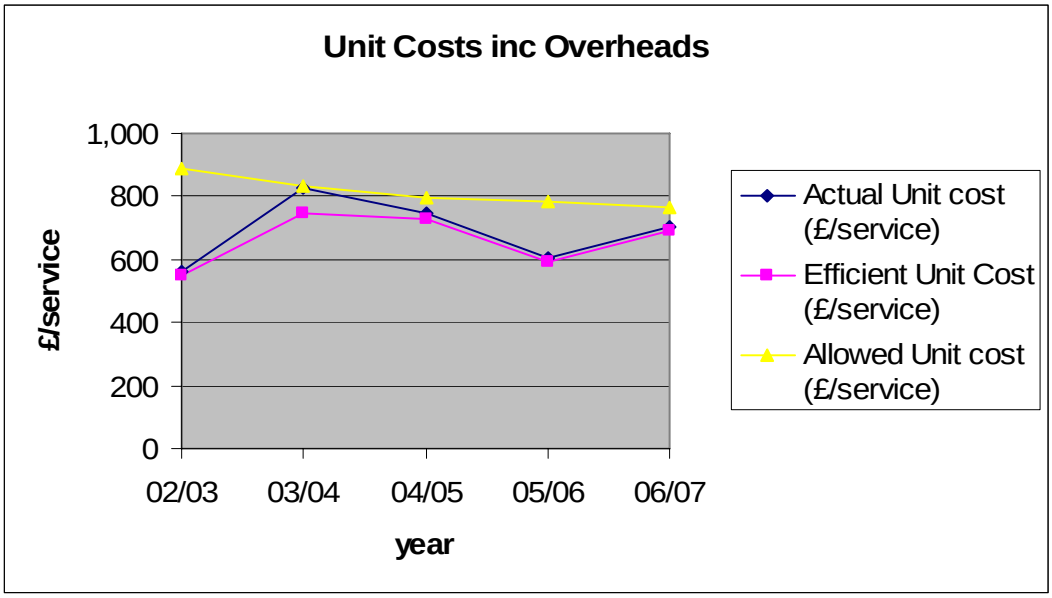

Figure 12

The workload balance does not provide any indication of the reason for the actual unit cost increase in 2003/04. 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 £680/service to £720/service.

The mid-point cost of £700/service applied to the forecast workload at 9647 results in an indicative 2007/08 expenditure forecast of £6.8m, including overheads, for Connections total services. Compared to the reported forecast at £6.8m, the variance is zero.

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 NGG 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 should be adjusted in accordance with Section 4.3.3.This results in an adjustment of -£0.6m.

iv) Our recommendations regarding the forecasts are summarised below:

Summary – Connections Forecast 2007/08 All figures £m 2005/06 Prices	Mains	Services
Reported Gross Investment Forecast	8.6	6.8
Reported Contributions	8.2	4.6
Reported Net Capex	0.4	2.2
Ofgem Adjusted Gross Investment Forecast	7.8	6.8
Ofgem Adjusted Contributions	7.6	5.0
Ofgem Adjusted Net Capex	0.2	1.8

Table 34

4.5 FORECAST TRENDS (2002 TO 2013)

4.5.1 HIGH LEVEL TREND

Connections – Mains

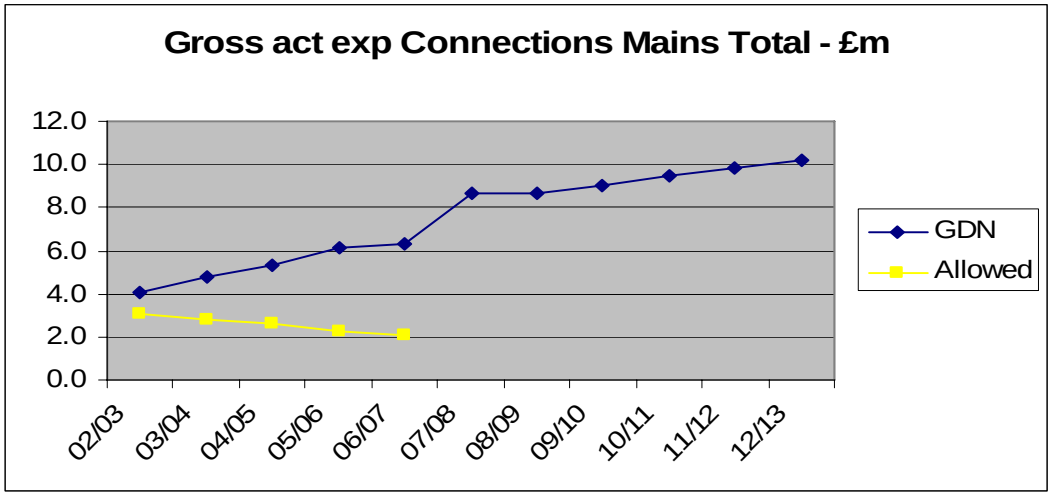

Figure 13

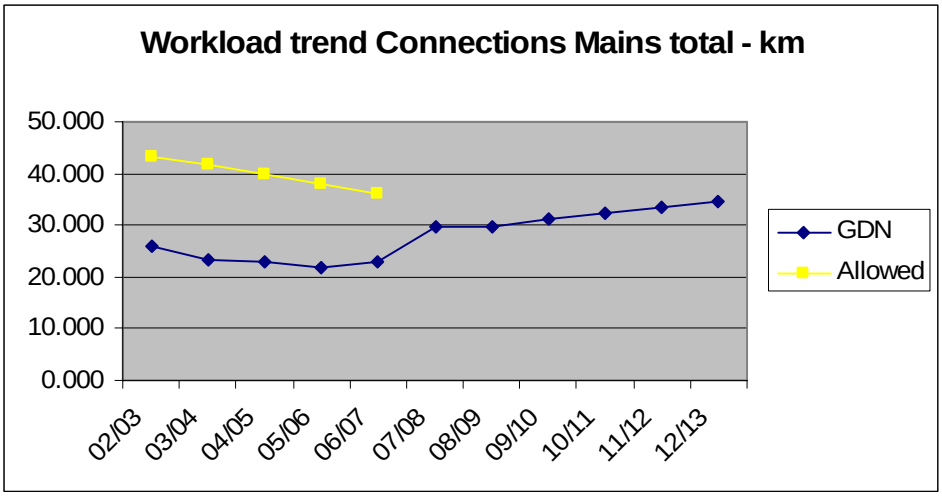

Figure 14

Connections – Services

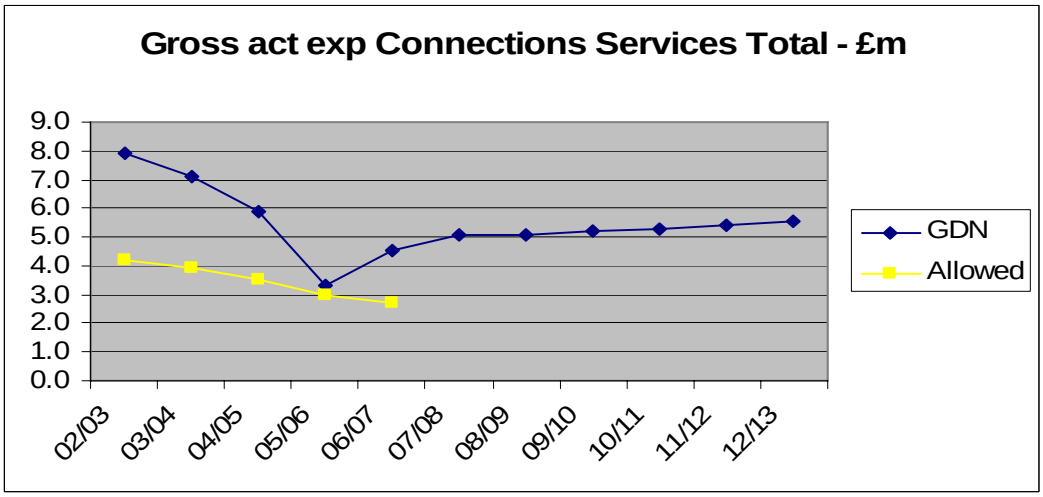

Figure 15

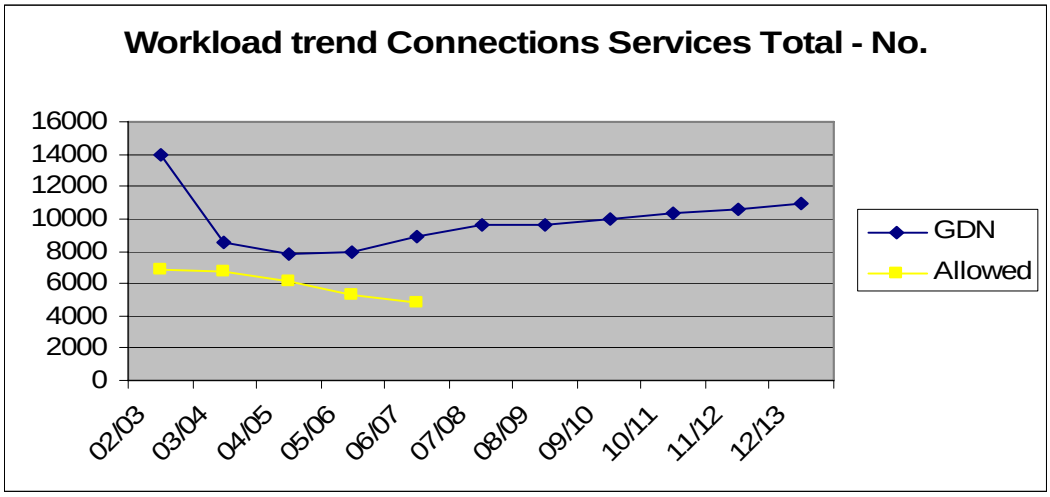

Figure 16

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 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.

- 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 WM.

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, NGG'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 £7.5m which is £4.2m (-36%) below 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

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

Categorisation of Forecast Expenditure

- We consider the forecast expenditure to be efficient.

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	**2.8**		**2.3**		**2.3**		**2.2**		**2.1**		**11.7**		
Total GDN Variance	**0.0**	**2%**	**-1.3**	**-55%**	**-1.1**	**-46%**	**-1.3**	**-59%**	**-0.6**	**-29%**	**-4.2**	**-36%**	
Reported Net Investment	**2.8**		**1.1**		**1.2**		**0.9**		**1.5**		**7.5**		**2.7**
Wasteful/Unnecessary Actual Expenditure	**0.1**		**0.0**		**0.1**						**0.3**		
Adjustments to Forecasts							**0.0**		**0.0**		**0.0**		**0.0**
Ofgem Adjusted Net Investment	**2.7**		**1.0**		**1.1**		**0.9**		**1.5**		**7.2**		**2.7**
Allowed Workload	**1.9**		**1.0**		**1.1**		**0.9**		**1.4**		**6.2**		
Additional Workload	**0.9**		**0.0**		**0.0**		**0.0**		**0.1**		**1.0**		
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 WM.

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.

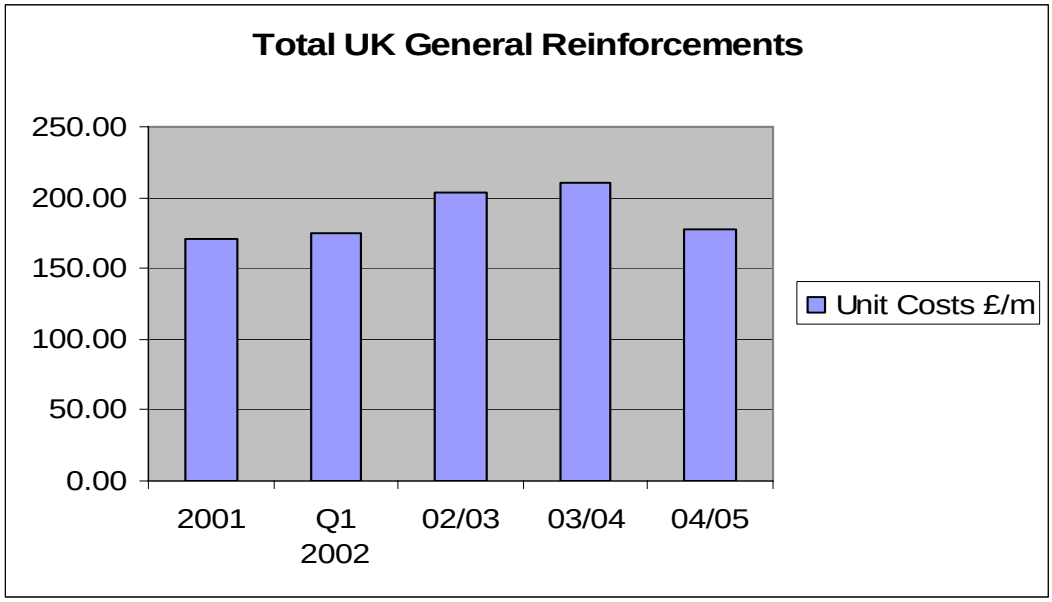

Figure 17

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.

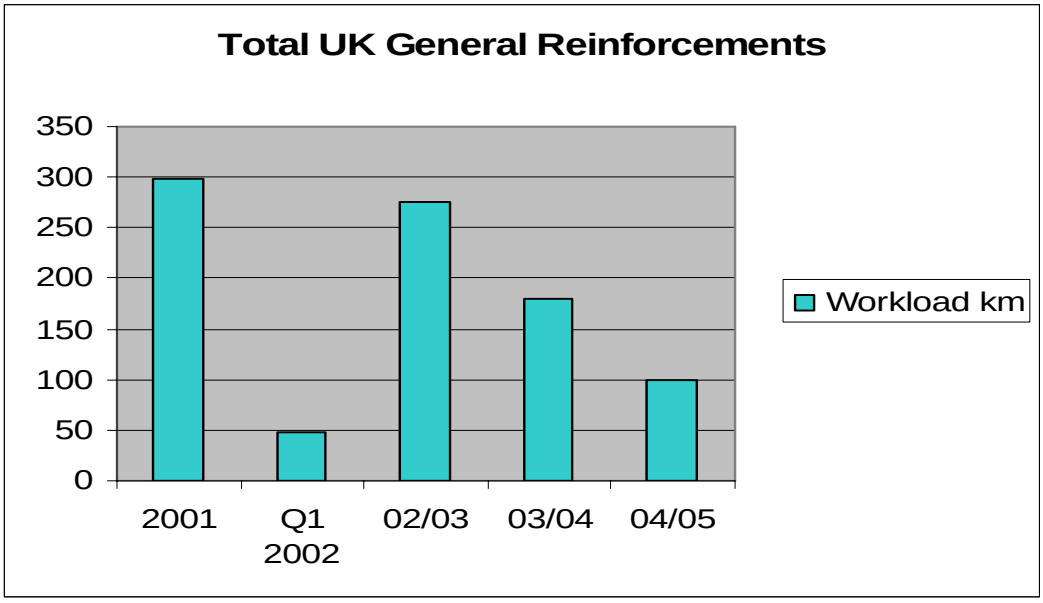

Figure 18

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 33% and -4% respectively.

Mains – General Reinforcement All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Gross (£m)	Actual	3.4	1.0	0.9	5.2
	Allowance	1.6	1.2	1.2	3.9
	Variance	1.8	-0.2	-0.2	1.3
Contributions (£m)	Actual	0.8	0.2	0.0	1.0
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.8	0.2	0.0	1.0
Net (£m)	Actual	2.6	0.7	0.9	4.3
	Allowance	1.6	1.2	1.2	4.0
	Variance	1.0	-0.5	-0.2	0.3
Workload (km)	Actual	15	5	4	24
	Allowance	10	7	7	24
	Variance	5	-2	-4	-1

Table 38

5.3.1.2 Governors

The gross expenditure is below the allowance for the 3 year period and the variance is -71%. The allowances did not specify workload for governors and variances in this respect are not available therefore.

Governors All figures £m All figures £m		2002/03	2003/04	2004/05	3 year Total
Gross	Actual	0.3	0.3	0.4	1.1
	Allowance	1.2	1.1	1.1	3.4
	Variance	-0.9	-0.8	-0.7	-2.4
Contributions	Actual	0.1	0.0	0.1	0.2
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.1	0.0	0.1	0.2
Net	Actual	0.2	0.3	0.3	0.8
	Allowance	1.2	1.1	1.1	3.4
	Variance	-1.0	-0.8	-0.8	-2.6

Table 39

5.3.2 REASONS FOR VARIANCES

5.3.2.1 Reinforcement Mains

We presume that the increased workload in 2002/03 resulted from a Transco initiated validation programme in 1999/2000 to validate all low and medium pressure networks which led to higher levels of reinforcement mains expenditure.

We are of the opinion that the full workload implications of the validation process were not evaluated prior to submission of the BPQ forecasts and were not predictable at that time therefore.

We assume that NGG policies and procedures regarding network planning were followed and the reinforcement works identified were necessary to ensure security of supply.

Reinforcement mains and governors activities are not normally rechargeable and do not result in contributions. Net Capex should be equal to Gross Capex therefore. WM has not provided any explanation for the £1.0m contributions reported over the 3 year period.

5.3.2.2 Governors

Expenditure is below the allowances over the 3 year period.

Contributions are not expected against this activity and, therefore, we presume that the sums reported for 2002/03 and 2004/05 have been allocated in 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	**2.8**	**1.1**	**1.2**	**5.1**
Wasteful/Unnecessary Expenditure	**0.1**	**0.0**	**0.1**	**0.3**
Reinforcement Mains	0.1	0.0	0.1	0.2
Governors	0.0	0.0	0.0	0.0
Ofgem Adjusted Net Investment	**2.7**	**1.0**	**1.1**	**4.8**
Allowed Workload	**1.9**	**1.0**	**1.1**	**4.0**
Additional Workload	**0.9**	**0.0**	**0.0**	**0.9**
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.

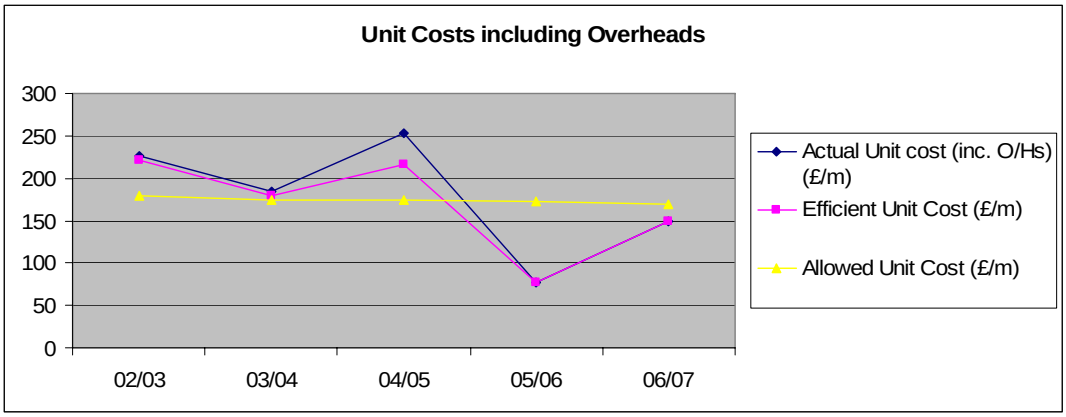

Figure 19

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.

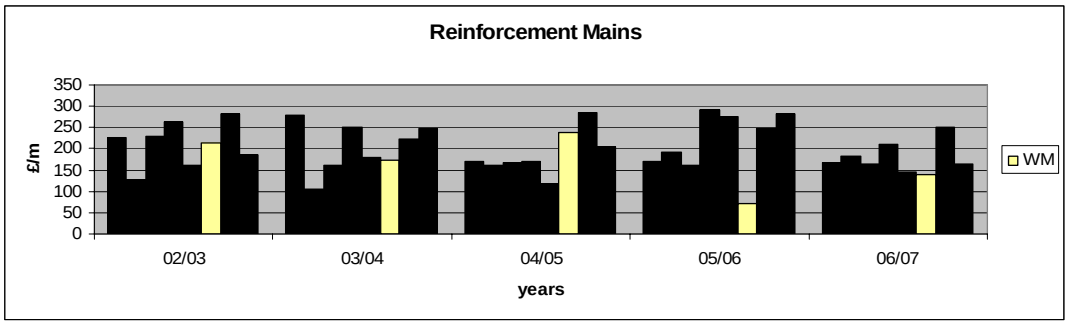

Figure 20

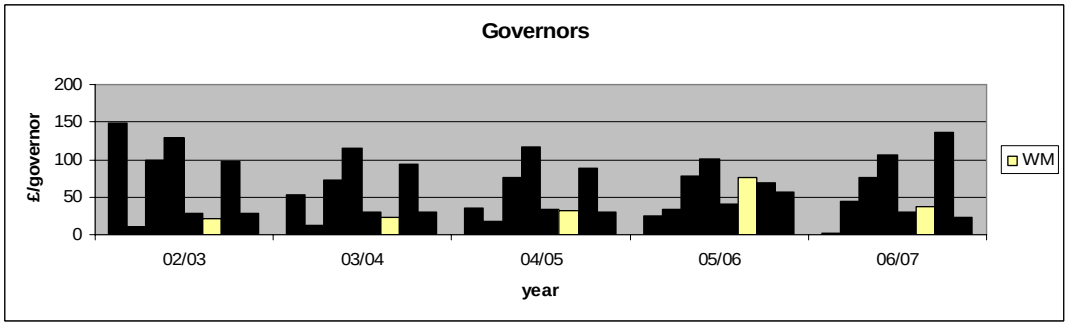

Figure 21

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

WM project management processes are in accordance with NGG Policies and Procedures and are subject to governance by the Distribution Project Sanctioning Committee (DPSC). DPSC Governance includes Investment Guidelines and review of authority levels.

Engineering planning services, including reinforcement planning and design, are centralised and provided to WM, and the other retained networks, by NGG. This ensures consistency in terms of application of planning policies, which are currently under review, and efficient use of resources.

All operational Capex projects > £50k are submitted for review and approval by the DPSC. Comprehensive 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 (-15%/+10%) are subject to re-submission. Monthly MI reports include all major projects (> £250k) supported periodically by updates from the project manager.

Examination of project documents confirms that recent submissions include:

- Alternative proposals, including cost estimates.
- Consideration of network policy mains replacement plans to ensure that the optimum combined solution is adopted.
- Least cost optimum engineering solution recommendation
- Financial impacts, risks and sensitivities

A Project Completion Report (PCR) is required for all projects and these reports are approved in accordance with delegated levels of authority. The completion report is designed to review all aspects of the project against the original approval, including scope of works, expenditure, timescale etc., and to identify any lessons learnt that should be taken into account for similar projects in the future. The level of detail is determined by the value of the project. Also, DPSC would normally request a PCR where there has been material variance from the authorised expenditure presented to the committee by the project manager.

NGG requires Post Investment Appraisals (PIA) for projects above £30m or at the request of authorising bodies. Approximately 10 projects per month, across all investment categories, are selected for PIA.

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 to ensure that 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 Appendix 1, Network Planning and Design.

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 adequate in terms of overall expenditure control to ensure efficient investment.

Project Reviews

The Church Stretton/Leominster Reinforcement project was selected for review and the documents provided confirmed general compliance with the project management processes described above. The project is ongoing and, therefore, PCR and PIA evidence is not applicable at this stage.

The project comprises upsizing of the MP supply to meet predicted peak demand for the 2006/07 winter and abandonment of a substantial the existing CI main. Alternative options are presented and the optimum Capex/Repex integrated solution is recommended for approval. Supporting information includes an assessment of network risks and GBNA pressure predictions.

No issues were identified.

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

Overspend Project Review

WM has not identified any projects for review costing more than £0.5m and with an overspend in excess of 20%.

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 to 10% and have applied an adjustment of -5% to the contract labour cost element to reflect this for the period 2002/03 to 2004/05.

Procurement - Materials

WM utilised NGG policies and procedures for PE pipe and fittings procurement and therefore benefited from the leverage resulting from large volume purchasing arrangements.

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

The Report on Procurement and Logistics - 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:

  Reinforcement mains: 2004/05 -30%

  Governors: no adjustments applied.

  Note: The expenditure analysis report has not been completed for the period 2002/03 to 2004/05. Therefore, 50% contract labour has been assumed for these years, consistent with later years, to facilitate completion of the analysis.
- 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 normally rechargeable and do not result in contributions. Net Capex should be equal to Gross Capex therefore.

WM has not provided any explanation for the £1.0m contributions reported over the 3 year period.

The analyses are based on the reported information.

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	3.4	1.0	0.9
Efficiency adjustments to gross expenditure	-0.1	0.0	-0.1
Adjusted gross expenditure including overheads	3.3	0.9	0.8
Contributions	0.8	0.2	0.0
Actual Net Capex	2.6	0.7	0.9
Adjusted Net Capex	2.5	0.7	0.8
Adjustments for under-recovery of contributions	0.0	0.0	0.0
Efficient Net Capex	2.5	0.7	0.8
Actual Volume – km	15	5	4
Efficient Unit cost - £/m	221.1	179.0	215.5

Table 41

Analysis Summary – Reinforcement Mains All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	**2.6**	**0.7**	**0.9**
Wasteful/Unnecessary Expenditure	0.1	0.0	0.1
Allowed Workload	1.6	0.7	0.8
Additional Workload	0.9	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	0.3	0.3	0.4
Efficiency adjustments to gross expenditure	0.0	0.0	0.0
Adjusted gross expenditure including overheads	0.3	0.3	0.4
Contributions	0.1	0.0	0.1
Actual Net Capex	0.2	0.3	0.3
Adjusted Net Capex	0.2	0.3	0.3
Adjustments for under-recovery of contributions	0.0	0.0	0.0
Efficient Net Capex	0.2	0.3	0.3
Actual Volume – No.	15	13	12
Efficient Unit cost - £/unit	21.2	23.8	33.3

Table 43

Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05
Reported Net Investment	**0.2**	**0.3**	**0.3**
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0
Allowed Workload	0.2	0.3	0.3
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	2.8	1.1	1.2	**0.9**	**1.5**	**7.5**	**2.7**
Adjustments	0.1	0.0	0.1	**0.0**	**0.0**	**0.3**	**0.0**
Reinforcement	0.1	0.0	0.1	0.0	0.0	0.2	0.0
Governors	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ofgem Adjusted Forecast Net Investment	2.7	1.0	1.1	**0.9**	**1.5**	**7.2**	**2.7**
Allowed Workload	1.9	1.0	1.1	**0.9**	**1.4**	**6.2**	
Additional Workload	0.9	0.0	0.0	**0.0**	**0.1**	**1.0**	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	

Table 45

Forecasting Processes and Assumptions

NGG's forecasting processes are detailed in the BPQ response. The principal planning assumptions applied to distribution Capex assessments are summarised below:

i) EPC rates will increase at a rate of RPI + 1 to 2%% p.a. over the 2006/07 to 2007/08 period. The level will be higher in London and the South East.

ii) Direct labour cost will increase at a rate of RPI +1.0%.

iii) Materials (PE pipe etc.) will increase at RPI

NGG does not identify any specific initiatives to improve efficiency and deliver cost benefits. However, NGG has implemented considerable change to business processes and operations since conclusion of the networks sales process in June 2005 and the resulting benefits are developing. These matters will be revisited under the main review to assess the forecasts to 2012/13.

Traffic Management Act (TMA)

We understand that NGG's forecasts for reinforcement mains and governors activities do not include 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 -43% and -36% respectively.

Mains – General Reinforcement All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross (£m)	Actual	3.4	1.0	0.9	0.1	1.1	6.4
	Allowance	1.6	1.2	1.2	1.1	1.0	6.1
	Variance	1.8	-0.2	-0.2	-1.0	0.1	0.4
Contributions (£m)	Actual	0.8	0.2	0.0	0.0	0.0	1.0
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.8	0.2	0.00	0.0	0.0	1.0
Net (£m)	Actual	2.6	0.7	0.92	0.1	1.1	5.5
	Allowance	1.6	1.2	1.2	1.1	1.0	6.1
	Variance	1.0	-0.5	-0.2	-1.0	0.1	-0.6
Workload (km)	Actual	15	5	4	1	7	32
	Allowance	10	7	7	7	7	38
	Variance	5	-2	-4	-6	1	-5

Table 46

Governors

The gross expenditure is below the allowance for the 2 year period and the variance is -45%.

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

Governors All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross	Actual	0.3	0.3	0.4	0.8	0.4	2.3
	Allowance	1.2	1.1	1.1	1.1	1.1	5.6
	Variance	-0.9	-0.8	-0.7	-0.3	-0.7	-3.4
Contributions	Actual	0.1	0.0	0.1	0.0	0.0	0.2
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.1	0.0	0.1	0.0	0.0	0.2
Net	Actual	0.2	0.3	0.3	0.8	0.4	2.0
	Allowance	1.2	1.1	1.1	1.1	1.1	5.6
	Variance	-1.0	-0.8	-0.8	-0.3	-0.7	-3.6

Table 47

5.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

Reinforcement Mains

Expenditure and workload are below allowances for the 2 year period.

NGG has not provided any explanation for the low level of activity in 2005/06.

We have not identified any issues and have no further comments to make.

Governors

Expenditure is below the allowances.

We have not identified any issues and have no further comments to make.

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 2006/07are 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:

  No adjustments applied.

- Contract labour cost adjustment to align unit cost with trend:

  Reinforcement mains - no adjustments applied.

  Governors – No adjustments applied.

- 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	3.4	1.0	0.9	0.1	1.1
Efficiency adjustments to gross expenditure	-0.1	0.0	-0.1	0.0	0.0
Adjusted gross expenditure including overheads	3.3	0.9	0.8	0.1	1.1
Contributions	0.8	0.2	0.0	0.0	0.0
Actual Net Capex	2.6	0.7	0.9	0.1	1.1
Adjusted Net Capex	2.5	0.7	0.8	0.1	1.1
Adjustments for under-recovery of contributions	0.0	0.0	0.0	0.0	0.0
Efficient Net Capex	2.5	0.7	0.8	0.1	1.1
Actual Volume – km	15	5	4	1	7
Efficient Unit cost - £/m	221.1	179.0	215.5	76.9	148.6

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	**2.6**	**0.7**	**0.9**	**0.1**	**1.1**
Wasteful/Unnecessary Expenditure	0.1	0.0	0.1	0.0	0.0
Allowed Workload	1.6	0.7	0.8	0.1	1.0
Additional Workload	0.9	0.0	0.0	0.0	0.1
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	0.3	0.3	0.4	0.8	0.4
Efficiency adjustments to gross expenditure	0.0	0.0	0.0	0.0	0.0
Adjusted gross expenditure including overheads	0.3	0.3	0.4	0.8	0.4
Contributions	0.1	0.0	0.1	0.0	0.0
Actual Net Capex	0.2	0.3	0.3	0.8	0.4
Adjusted Net Capex	0.2	0.3	0.3	0.8	0.4
Adjustments for under-recovery of contributions	0.0	0.0	0.0	0.0	0.0
Efficient Net Capex	0.2	0.3	0.3	0.8	0.4
Actual Volume – No.	15	13	12	10	10
Efficient Unit cost - £/unit	21.2	23.8	33.3	80.0	40.0

Table 50

Analysis Summary – Governors All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07
Reported Net Investment	0.2	0.3	0.3	**0.8**	**0.4**
Wasteful/Unnecessary Expenditure	0.0	0.0	0.0	0.0	0.0
Allowed Workload	0.2	0.3	0.3	0.8	0.4
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

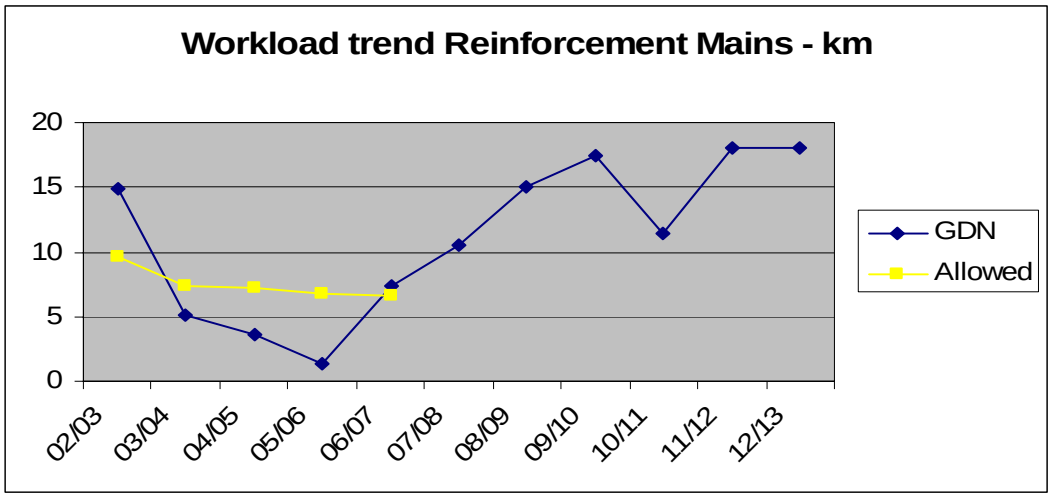

Figure 22

The increase in reinforcement mains workload in 2006/07 continues into 2007/08 and is substantially associated with the larger pipe diameters.

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

Governors

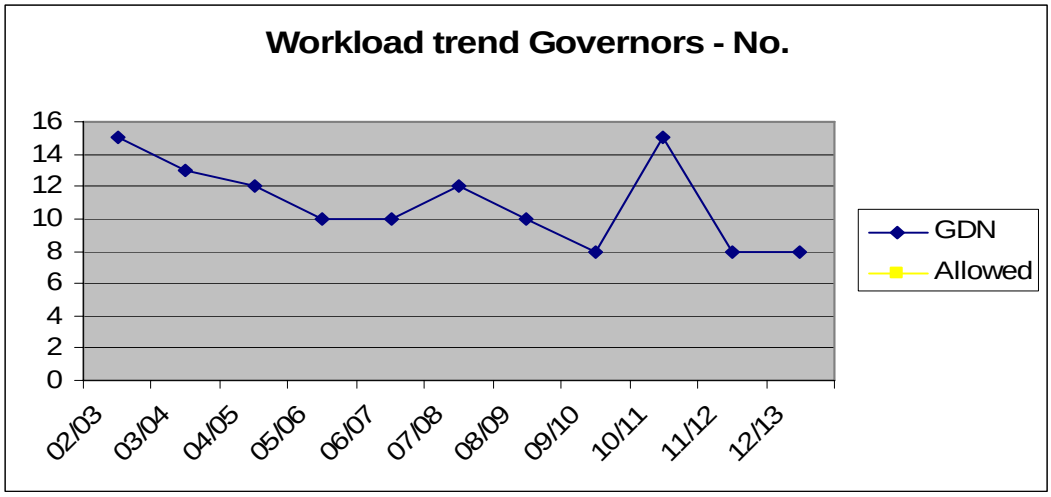

Figure 23

Governors workload for 2007/08 is aligned with the historic trend and we have not identified any issues.

5.4.4.3 Assessment of Forecast Capex

We have made no adjustments to the workload forecasts.

Reinforcement Mains

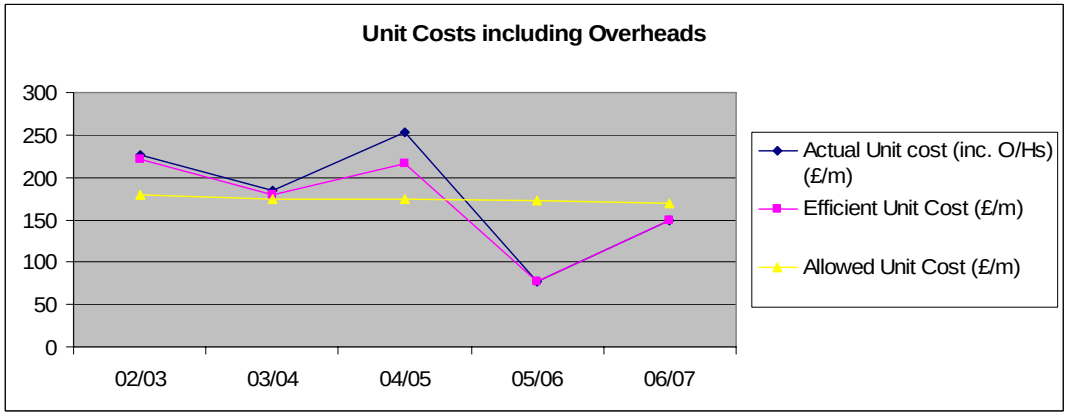

Figure 24

The workload balance does not provide any indication of the reason for the actual unit cost increase in 2004/05. This matter has been addressed in the analysis process by an adjustment to determine the efficient unit cost.

The low unit cost for 2005/06 is associated with an exceptionally low workload and is discounted in terms of the overall trend.

We recommend that forecast expenditure is based on the historic efficient unit cost trend. On this basis the forecast unit cost inclusive of overheads for 2007/08 will be in the range £150/m to £170/m. The mid point unit cost of £160/m applied to the forecast workload at

10.5km results in an indicative 2007/08 expenditure forecast of £1.7m, including overheads, for reinforcement mains. Compared to the reported forecast at £1.7m, the variance is zero.

Governors

The level of expenditure in 2007/08 is influenced by increased replacement activity at a high unit cost. We presume that this work is planned and the forecast reflects operational circumstances.

No other issues have been identified regarding WM's forecast at £1.0m 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 WM's forecast expenditure for governors activities be accepted at £1.0m.
- 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	1.7	1.0
Ofgem Adjusted Gross Investment Forecast	1.7	1.0

Table 52

5.5 FORECAST TRENDS (2002 TO 2013)

5.5.1 HIGH LEVEL TREND

Reinforcement Mains

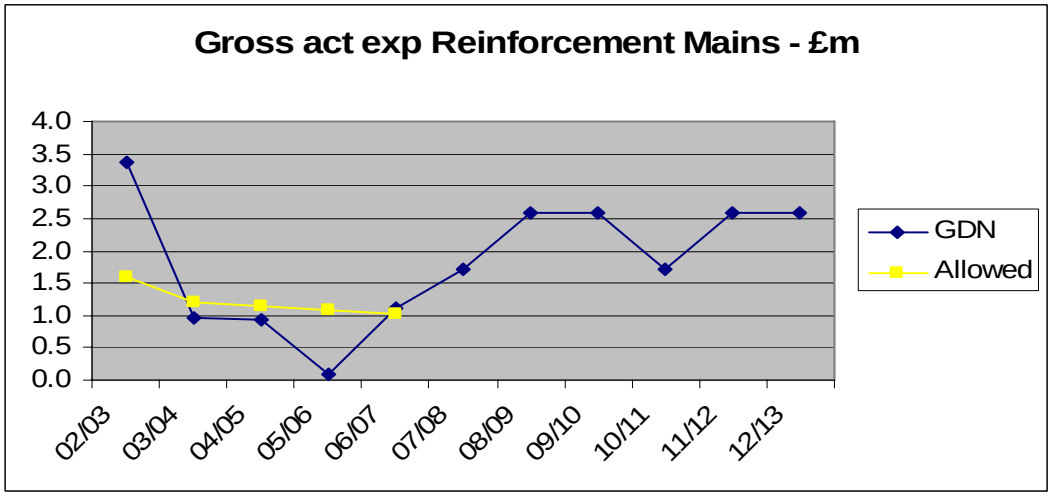

Figure 25

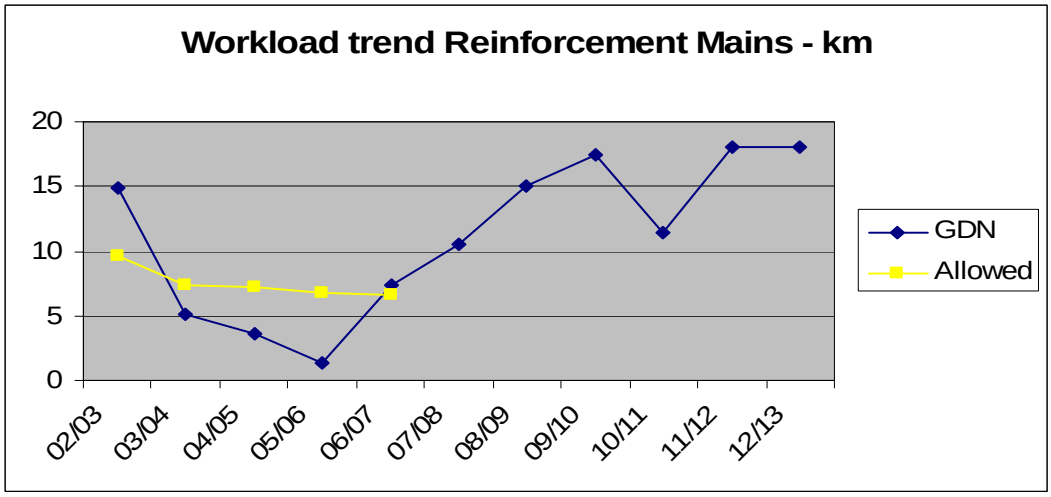

Figure 26

Governors

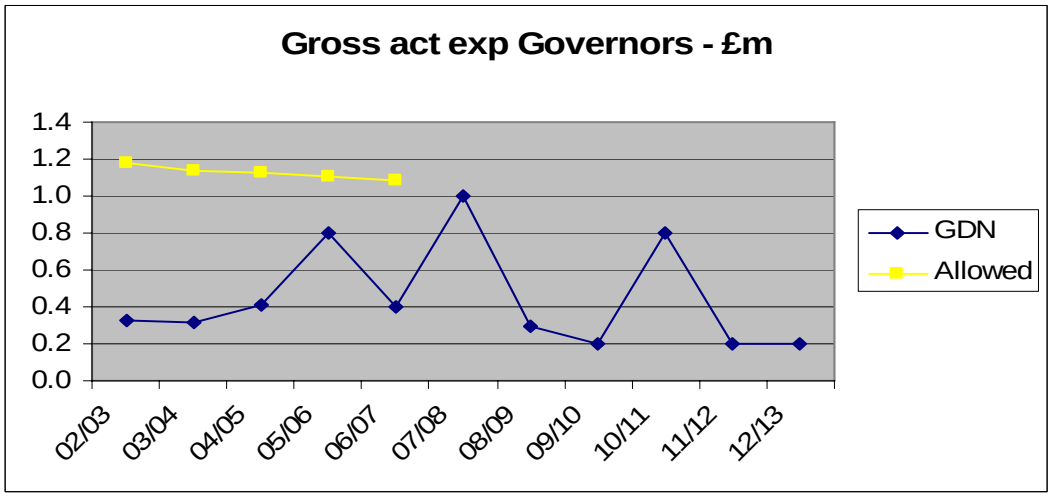

Figure 27

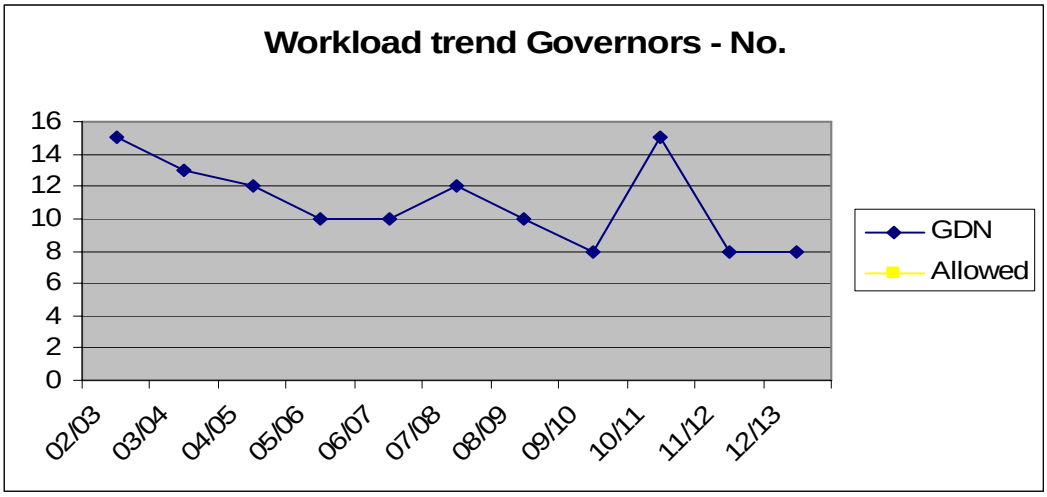

Figure 28

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. We presume that the workload is associated with identified projects. 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 level of expenditure in 2007/08 is influenced by increased replacement activity at a high unit cost.

The high workload ion 2010/11 is associated with increased replacement activity.

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

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

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 overspent by £0.4m (17%).

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 where provided.
- Review of procurement policies and procedures, where provided.
- No data was provided for Land and Buildings in this period

Key Issues

- The 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.

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	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**		**2.4**		
Total GDN Variance	**0.6**	**110%**	**-0.3**	**-56%**	**-0.1**	**-13%**	**-0.4**	**-78%**	**0.5**	**119%**	**0.4**	**17%**	
Reported Net Investment	**1.1**		**0.2**		**0.4**		**0.1**		**1.0**		**2.8**		**1.0**
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	**1.1**		**0.2**		**0.4**		**0.1**		**1.0**		**2.8**		**1.0**
Allowed Workload	**0.4**		**0.2**		**0.4**		**0.1**		**1.0**		**2.1**		
Additional Workload	**0.7**		**0.0**		**0.0**		**0.0**		**0.0**		**0.7**		
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

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 WM.

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 carried out is;

- Review of processes to monitor and control expenditure & projects.
- Review of procurement policies and procedures for Plant & Equipment.
- High level trend analysis of the levels of expenditure.

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 All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Plant & Equipment	Total Actual	1.1	0.2	0.2	1.5
	Allowance	0.4	0.4	0.4	1.2
	Variance	0.7	-0.2	-0.2	0.3
Land & Buildings	Total Actual	0.0	0.0	0.2	0.2
	Allowance	0.1	0.1	0.1	0.3
	Variance	-0.1	-0.1	0.1	-0.1
Total	Total Actual	1.1	0.2	0.4	1.7
	Allowance	0.5	0.5	0.5	1.5
	Variance	0.6	-0.3	-0.1	0.2

Table 57

6.3.2 REASONS FOR VARIANCES

NGG has not provided any commentary on the reasons for the variances in respect of Other Operational Capex which was overspent by £0.2m.

WM has not provided any reasons as to why the Land and Buildings allowance has been underspent by £0.1m in this period.

6.3.3 EFFICIENCY ANALYSIS

Net Other Operational Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	**1.1**	**0.2**	**0.4**	**1.7**
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	**1.1**	**0.2**	**0.4**	**1.7**
Allowed Workload	**0.4**	**0.2**	**0.4**	**1.0**
Additional Workload	**0.7**	**0.0**	**0.0**	**0.7**
Deferrable/Unplanned but Predictable	**0.0**	**0.0**	**0.0**	**0.0**

Table 58

6.3.3.1 Plant & Equipment

Plant and machinery expenditure is generally associated with the installation of leakage management equipment and replacement/acquisition of plant to support network operations and activities.

NGG investment in the VeSaS system was primarily justified by improvements to the safety of employees and improvements in the utilisation of vehicles. £0.5m is allocated to WM in 2002/03 against this project.

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

NGG policies and procedures regarding leakage management are based on many years of operational experience and are considered to be satisfactory in terms of investment to deliver safety, environmental and Opex benefits. Equipment is installed, replaced or enhanced when there is a cost benefit justification to do so.

The operation of low and medium pressure networks is assessed annually in the analysis and planning process which incorporates a review of leakage performance by modelling based on gas lost and actioned escapes. This information is then used to evaluate the cost benefit from investment in pressure management or gas conditioning equipment.

Generally, other investment in plant and equipment is driven by operational necessity and/or reduction in (Opex) maintenance expenditure, e.g. MP/IP valve remediation to ensure access and operation in emergency circumstances.

Project Appraisal Processes

NGG was unable to locate the project documents requested for examination to confirm compliance with policies and procedures.

Procurement

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

Summary

The expenditure for all years is substantially associated with 'Other Plant & Equipment Projects', i.e. excludes leakage management, and no explanation or analysis has been provided. We presume that the expenditure has been incurred to purchase mobile plant and other equipment to support operational activities.

We conclude that NGG's policies and procedures are adequate to ensure efficient plant and machinery expenditure. However, project documents were not provided by NGG and we are unable to confirm compliance therefore.

The variance with the allowance for the period 2002/03 to 2004/05 is substantially associated with 0.5m investment in VeSaS.

6.3.3.2 Land and Buildings

Property Portfolio

West Midland'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.

Some of their operational sites share boundaries with freehold sites which have transferred ownership to NG Property Holdings; these sites have potential development value. It is recognised that NGPH may wait to develop their part of the site until the WM parcel is no longer operational; this will release additional marriage value from which both companies will benefit but the timings will be driven by operational needs only.

Land Sales Proceeds

WM advise that 9 sites have been sold between April 2002 and March 2005 for an aggregate net income of c£1.8m.

Property Costs 2002 to 2005

WM has indicated a spend of £0.2m on land and buildings in this price control period. It is not stated what this was for. This is less than the allowance by £0.1m.

Summary

The operational property issues in WM are unexceptional and unlikely to move over the next control period. The majority of occupied property related costs sit in Opex. 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.

6.4 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 All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Plant & Equipment	Total Actual	1.1	0.2	0.2	0.1	1.0	2.6
	Allowance	0.4	0.4	0.4	0.4	0.4	1.9
	Variance	0.7	-0.2	-0.2	-0.3	0.6	0.7
Land & Buildings	Total Actual	0.0	0.0	0.2	0.0	0.0	0.2
	Allowance	0.1	0.1	0.1	0.1	0.1	0.5
	Variance	-0.1	-0.1	0.1	-0.1	-0.1	-0.3
Total	Total Actual	1.1	0.2	0.4	0.1	1.0	2.8
	Allowance	0.5	0.5	0.5	0.5	0.5	2.4
	Variance	0.6	-0.3	-0.1	-0.4	0.5	0.4

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 38%.

No reasons are given for the Land and Buildings variance.

6.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

Net Other Operational 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	1.1	0.2	0.4	**0.1**	**1.0**	**2.8**	**1.0**
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	1.1	0.2	0.4	**0.1**	**1.0**	**2.8**	**1.0**
Allowed Workload	0.4	0.2	0.4	**0.1**	**1.0**	**2.1**	
Additional Workload	0.7	0.0	0.0	**0.0**	**0.0**	**0.7**	
Deferrable/Unplanned but Predictable	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	

Table 60

6.4.3.1 Plant & Equipment

NGG has indicated that potential leakage management scheme options for WM will be assessed and progressed during 2006. We presume that the anticipated outcome is incorporated into the forecasts as £0.4m is allocated to Leakage Management P & E in 2005/06.

The increased level of expenditure in 2006/07 is substantially associated with commencement of MP/IP valve remediation and kiosk roof upgrade works.

6.4.3.2 Land & Buildings

Total Land and Buildings expenditure in the period is £0.2m. There are no issues.

6.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

Other Net Capex All figures £m 2005/06 Prices	2007/08
Plant & Equipment	1.0
Land & Buildings	0.0
Total	1.0

Table 61

6.4.4.1 Plant & Equipment

Expenditure in 2007/08 is substantially associated with ongoing MP/IP valve remediation, kiosk roof upgrade works and leakage management.

6.4.4.2 Land & Buildings

There is no expenditure shown in 2007/08 for Land and Buildings.

6.5 FORECAST TRENDS (2002 TO 2013)

6.5.1 HIGH LEVEL TREND

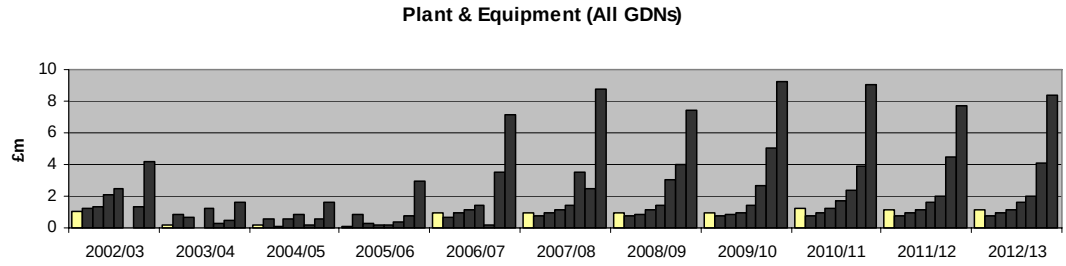

Figure 29

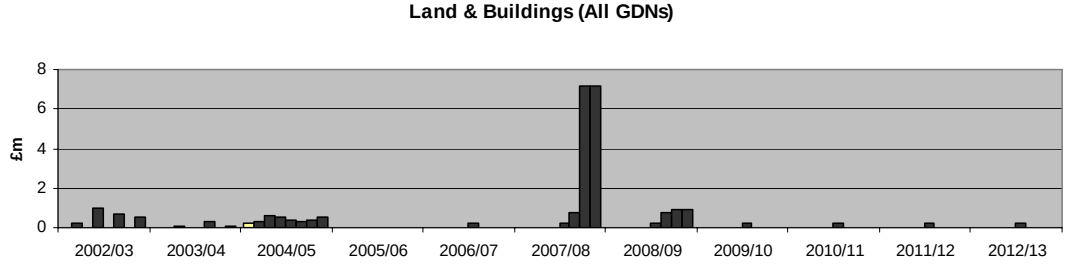

Figure 30

6.5.2 COMMENTS ON TREND

6.5.2.1 Plant & Equipment

Forecasts from 2006/07 to 2012/13 are virtually 'flat' and do not provide confidence that accurate assessments have been made. This matter will be re-visited for the 5 year PCR.

6.5.2.2 Land & Buildings

There is no expenditure indicated for Land and Buildings beyond 2004/05.

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 NGG 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 [redacted] 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 overspend of £4.4m, mainly in System Operation, IS and Other Allocated costs.

Analysis Carried Out

Various analyses have been carried out to assess investment efficiency

- 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
- NGG have some large central allocations. In other GDNs some of these have been classified as Other Operational Capex

Categorisation of Incurred Expenditure

- £1.0m of Ulysses expenditure has been assessed as inefficient
- £0.3m of Quarterback expenditure has been assessed as inefficient

Categorisation of Forecast Expenditure

- No adjustments made

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	6.0		5.1		2.9		3.5		3.8		21.2		
Total GDN Variance	-2.0	-33%	-1.7	-34%	0.2	8%	3.6	103%	4.2	113%	4.4	21%	
Reported Net Investment	4.0		3.4		3.1		7.1		8.0		25.6		9.1
Wasteful/Unnecessary Actual Expenditure	0.6		0.4		0.3						1.3		
Adjustments to Forecasts							0.0		0.0		0.0		0.0
Ofgem Adjusted Net Investment	3.4		3.0		2.8		7.1		8.0		24.3		9.1
Allowed Workload	3.0		3.0		2.7		5.0		6.3		20.0		
Additional Workload	0.4		0.0		0.1		2.0		1.7		4.3		
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
Reported Net Investment	**92.7**	**13.6**	**106.3**
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 All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	3 year Total
Non-Operational Direct	Abatement	0.0	0.0	0.0	0.0
	Aggregate Recycling Equipment	0.0	0.0	0.0	0.0
	Furniture and fittings	0.0	0.0	0.0	0.0
	Security	0.0	0.0	0.0	0.0
	Telecoms, Office	0.1	0.1	0.0	0.2
	Tools & Equipment	0.0	0.0	0.0	0.0
	Vehicles	1.1	0.0	0.2	1.3
	Total Actual	1.2	0.1	0.2	1.5
	Allowance	1.5	1.5	1.5	4.5
	Variance	-0.3	-1.4	-1.3	-3.0
System Operation	Total Actual	0.7	0.7	0.7	2.1
	Allowance	0.5	0.1	0.2	0.7
	Variance	0.2	0.7	0.6	1.4
IS	Total Actual	1.5	2.4	2.2	6.1
	Allowance	3.8	3.4	1.1	8.4
	Variance	-2.3	-1.0	1.0	-2.2
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)	Capitalised Interest	0.0	0.0	0.0	0.0
	NDC Recharges	0.0	0.0	0.0	0.0
	Other charges<£0.5m	0.3	-0.1	-0.1	0.1
	Procurement & Logistics	0.0	0.0	0.0	0.0
	Property	0.3	0.2	0.1	0.6
	Total Actual	0.7	0.1	0.0	0.8
	Allowance	0.2	0.1	0.1	0.4
	Variance	0.4	0.0	-0.1	0.3
Total	Total Actual	4.0	3.4	3.1	10.5
	Allowance	6.0	5.1	2.9	14.0
	Variance	-2.0	-1.7	0.2	-3.5

Table 67

[2] Note xoserve was not set up until April 2005

7.3.2 REASONS FOR VARIANCES

System Operation Capex was higher than the allowance largely reflecting the replacement of telemetry outstations between 2002/03 and 2004/05.

NGG have delayed investment in vehicles during the period 2002/03 to 2004/05 by reviewing the replacement policy, reusing vehicles of employees leaving the Company and by improved utilisation (VeSaS).

The savings achieved over the period to March 2005 will be offset by higher spend over the last 2 years of the current price control.

A number of property improvements were made which increased the allocation of property costs to WM network

7.3.3 EFFICIENCY ANALYSIS

Non Operational Net Capex Operational Capex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Reported Net Investment	**4.0**	**3.4**	**3.1**	**10.5**
Wasteful/Unnecessary Expenditure	**0.6**	**0.4**	**0.3**	**1.3**
Non-Operational Direct	0.0	0.0	0.0	0.0
System Operation	0.5	0.2	0.2	1.0
IS	0.1	0.1	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	**3.4**	**3.0**	**2.8**	**9.2**
Allowed Workload	**3.0**	**3.0**	**2.7**	**8.7**
Additional Workload	**0.4**	**0.0**	**0.1**	**0.5**
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)

Over the three years 2002/03 to 2004/05 there was an underspend of £3.0m. The largest item of expenditure in this category is vehicles. The underspend in the three years would appear to be partly the result of reduced investment including the network sales process.

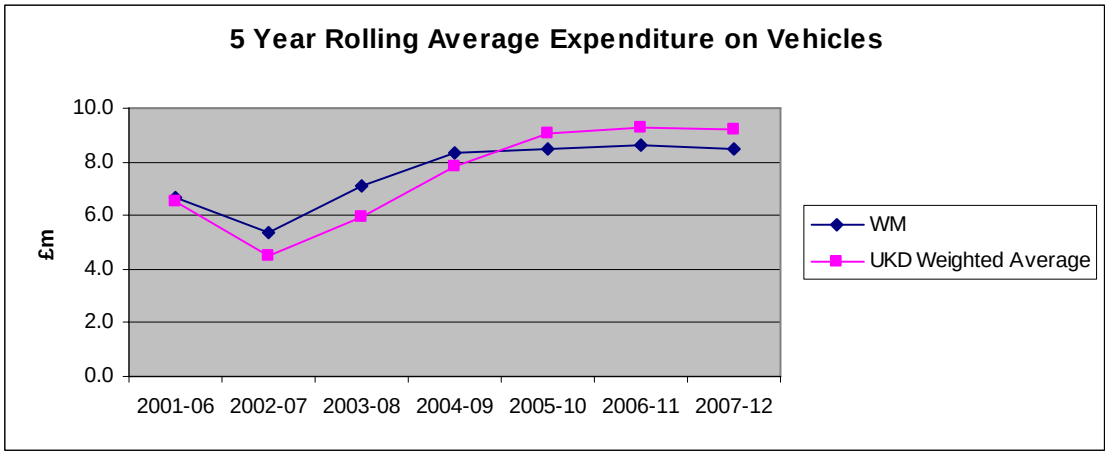

Figure 31

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 WM networks' share of the inefficient spend was £1.0m.

7.3.3.3 IS

Until June 2005 IS services to the network were centrally provided by NGG as part of a centralised service to all 8 networks. 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 WM 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

This is overspent by £0.3m. The largest category of expenditure in this area is property costs which NGG state have been made particularly a new building at 35 Homer Road, a distribution centre at Pocket Nook, St Helens and refurbishment of Norgas House. We have found no reason to adjust these figures.

7.4 FORECAST EXPENDITURE

7.4.1 HIGH LEVEL VARIANCES ANALYSIS (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
Non-Operational Direct	Abatement	0.0	0.0	0.0	0.0	-0.4	-0.4
	Aggregate Recycling Equipment	0.0	0.0	0.0	0.0	0.0	0.0
	Furniture and fittings	0.0	0.0	0.0	0.0	0.0	0.0
	Security	0.0	0.0	0.0	0.0	0.0	0.0
	Telecoms, Office	0.1	0.1	0.0	0.0	0.1	0.3
	Tools & Equipment	0.0	0.0	0.0	0.0	0.5	0.5
	Vehicles	1.1	0.0	0.2	2.1	2.6	6.0
	Total Actual	1.2	0.1	0.2	2.1	2.8	6.4
	Allowance	1.5	1.5	1.5	1.5	1.6	7.6
	Variance	-0.3	-1.4	-1.3	0.6	1.2	-1.2
System Operation	Total Actual	0.7	0.7	0.7	0.2	0.7	3.0
	Allowance	0.5	0.1	0.2	0.5	0.4	1.6
	Variance	0.2	0.7	0.6	-0.3	0.3	1.4
IS	Total Actual	1.5	2.4	2.2	3.2	3.4	12.7
	Allowance	3.8	3.4	1.1	1.4	1.6	11.3
	Variance	-2.3	-1.0	1.0	1.8	1.8	1.4
xoserve[3]	Total Actual	0.0	0.0	0.0	0.0	0.1	0.1
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.0	0.0	0.1	0.1
Non-Operational (Allocated)	Capitalised Interest	0.0	0.0	0.0	0.2	0.2	0.4
	NDC Recharges	0.0	0.0	0.0	0.2	0.1	0.3
	Other charges<£0.5m	0.3	-0.1	-0.1	0.0	0.0	0.1
	Procurement & Logistics	0.0	0.0	0.0	0.0	0.3	0.3
	Property	0.3	0.2	0.1	1.2	0.4	2.2
	Total Actual	0.7	0.1	0.0	1.6	1.0	3.4
	Allowance	0.2	0.1	0.1	0.1	0.1	0.6
	Variance	0.4	0.0	-0.1	1.5	0.9	2.7
Total	Total Actual	4.0	3.4	3.1	7.1	8.0	25.6
	Allowance	6.0	5.1	2.9	3.5	3.8	21.2
	Variance	-2.0	-1.7	0.2	3.6	4.2	4.4

Table 69

7.4.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

NGG state that some IS projects have been delivered at lower cost than expected at the time of the last price control review partly because of the pace of development in the high-tech communications and computing industries.

[3] Note xoserve was not set-up until April 2005

A reduced expenditure on vehicles in the first three years 2002/03 to 2004/05 has been corrected by increased spending plans in the years 2005/06 to 2006/07

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	4.0	3.4	3.1	**7.1**	**8.0**	**25.6**	**9.1**
Adjustments	0.6	0.4	0.3	**0.0**	**0.0**	**1.3**	**0.0**
Non-Operational Direct	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Operation	0.5	0.2	0.2	0.0	0.0	1.0	0.0
IS	0.1	0.1	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	3.4	3.0	2.8	**7.1**	**8.0**	**24.3**	**9.1**
Allowed Workload	3.0	3.0	2.7	**5.0**	**6.3**	**20.0**	
Additional Workload	0.4	0.0	0.1	**2.0**	**1.7**	**4.3**	
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

This category has an underspend of £1.2m for the 5 year period. The bulk of this expenditure is associated with vehicle expenditure. WM network would appear to be ahead of the other networks in the earlier purchasing of vehicles following the low expenditure in previous years. We have no adjustments to make for this category.

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 WM network.

The forecast expenditure for 2006/07 is associated with the replacement of GTMS system. We consider the estimates for this project to be reasonable and have 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 was 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 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. 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). During this period National Grid has minimised the changes to these systems to meet the FOMSA agreement conditions.

In the period 2005/06 to 2006/07 NGG started to make IS investments in new infrastructure. In additional they started investment in the transformation project which involved centralising their support operations at Warwick, Hinckley and a new location at Northampton. We have not been given the full approval paper for this move, however, the IS paper states that the full scheme has an NPV of £8.2m over 10 years.

Other projects include replacement of field force laptop equipment and a sum for unspecified smaller business projects. We have found no reasons to make further adjustments to their forecast for this period.

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. NGG has a 56.57% 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 have no adjustments to propose for the xoserve forecasts in WM's Capex plans.

Further details are given in Appendix 6.

7.4.3.5 Non-Operational Allocated

This area of expenditure would appear to be large for NGG as it captures all central services such as property, procurement & logistics and other financial accounting charges/adjustments. We are not able to comment on these charges in detail as they have no clear previous history with which to make comparisons. Whilst not large in comparison to the IS and System Operation expenditure levels we would recommend further investigation of these items in the main control review.

7.4.3.6 Summary

There is a total overspend of £4.5m, accounted for by overspends in System Operation, IS and Other Allocated costs.

7.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

Non-Operational Net Capex All figures £m 2005/06 Prices	2007/08
Non-Operational Capex Other (Direct)	3.4
System Operation	1.2
IS	3.1
xoserve	0.6
Non-Operational Capex Other (Allocated)	0.8
Total	9.1

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)

We note that the expenditure on vehicles continues. NGG are also forecasting expenditure on Aggregate Recycling Equipment, and some remedial work on above 7 bar pipelines. We are surprised that these items have been included into the Non-Operational category. We believe the revised capture for information in the main control review will eliminate some of these anomalies which will make comparisons easier in the future. We have not identified any adjustments for this category.

7.4.4.2 System Operation

The forecast expenditure for 2007/08 is associated with the replacement of GTMS system. We consider the estimates for this project to be reasonable and have therefore not made any adjustments to these forecasts.

7.4.4.3 IS

The IS forecast is slightly higher than for previous years. This reflects the lower spending on IS systems during the sales process and NGG is now making investments in systems changes. These are incremental changes to the existing suite of systems together with further investment in infrastructure. We have no reason to make adjustments to this forecast.

7.4.4.4 xoserve

As we have explained in section 7.4.3.4 above we consider the plans for this period to be appropriate and make no adjustments.

7.5 FORECAST TRENDS (2002 TO 2013)

7.5.1 HIGH LEVEL TREND

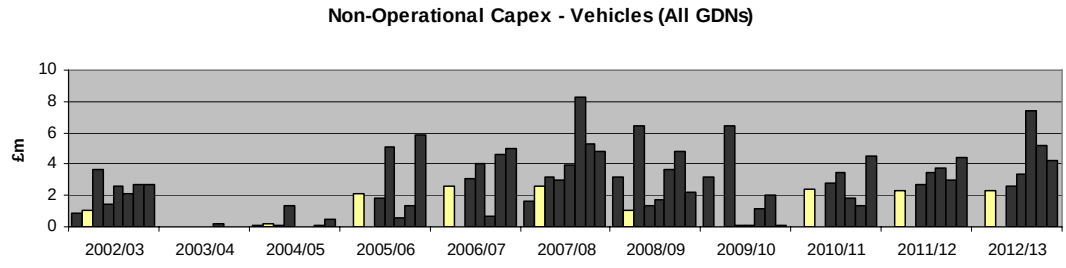

Figure 32

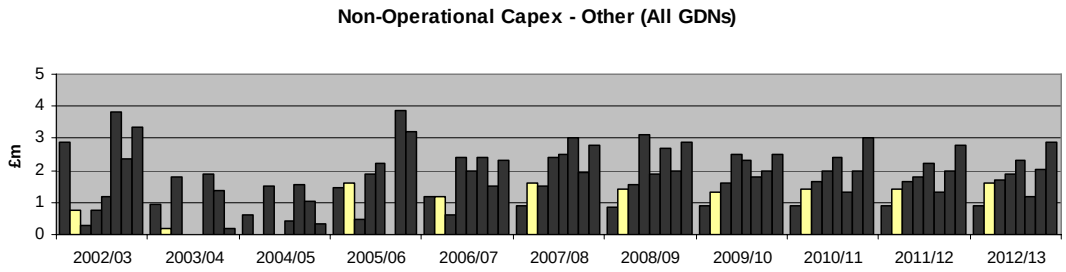

Figure 33

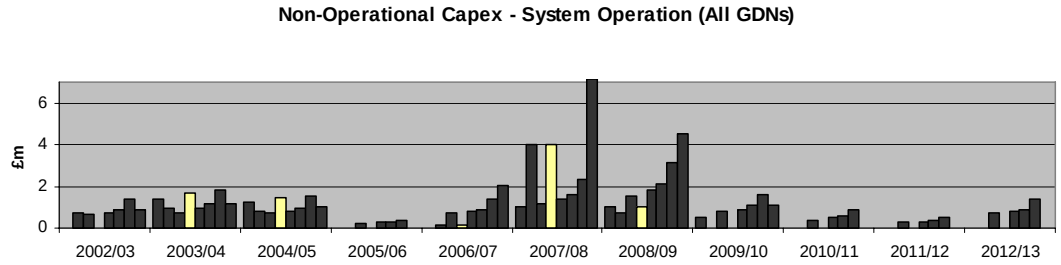

Figure 34

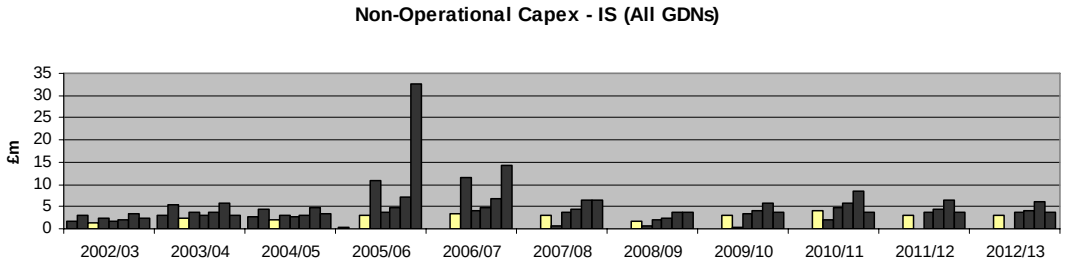

Figure 35

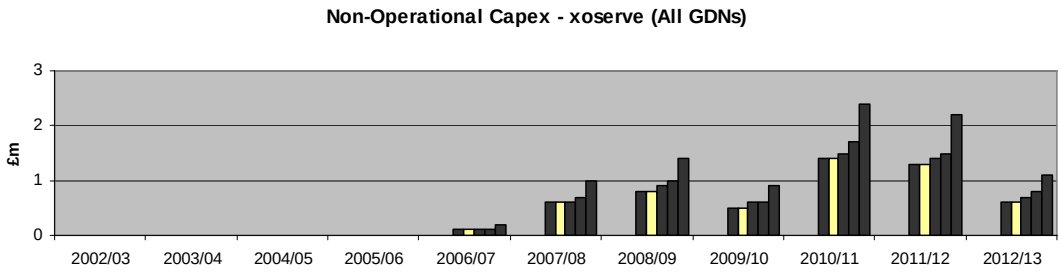

Figure 36

7.5.2 COMMENTS ON TREND

7.5.2.1 Vehicles

WM network (as with all other NGG networks) is ahead of the average for replacement of vehicles on a rolling 5 year basis.

7.5.2.2 Non-Operational Other

WN network (as with all other NGG networks) has large allocations from central functions such as property and procurement and logistics. There is a peak of these costs forecast for 2010/11. It is recommended that this area is investigated during the main control review.

Non-Operational Other Capex Breakdown of Items All figures £m 2005/06 Prices	2002/03 - 2006/07	2007/08 - 2012/13	Total
Aggregate Recycling Equipment	0.0	0.2	0.2
Capitalised Interest	0.4	1.2	1.6
NDC Recharges	0.3	0.8	1.1
Other charges<£0.5m	0.1	0.0	0.1
Procurement & Logistics	0.3	1.6	1.9
Property	2.2	1.6	3.8
Security	0.0	1.0	1.0
Telecoms, Office	0.3	0.6	0.9
Tools & Equipment	0.5	3.0	3.5
Totals	3.8	8.7	12.5

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

National Grid will look to start implementing changes to the FOMSA systems once the support of the sold networks has been completed. The forecast shows a modest increase in 2010/11 which we believe will be the point at which when NGG is planning to replace its FOMSA systems.

7.5.2.5 xoserve

As we have commented in Appendix 6 we believe the forecasts for xoserve funding requirements for the rewrite of the UK Link systems should be reviewed during the main 5 year control review.

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	**57.5**		**38.6**		**42.5**		**43.9**		**42.9**		**225.4**	
Total GDN Variance	-4.7	-8%	-0.1	-0%	8.5	+20%	5.5	+13%	16.9	+39%	26.1	+12%
Reported Net Investment	**52.8**		**38.5**		**51.0**		**49.4**		**59.8**		**251.5**	

Table 73

8.1.2.1 Mains Workload

Accepted GDN Programme

West Midlands 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 353km 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 367km/yr from 2007/08.

HSE requirement was separately defined for the Network as follows:

Iron Mains to be De-commissioned	2004/05	2005/06
HSE Requirement (km decommissioned)	300	330
GDN actual (Policy)	301	330
GDN total decommissioned (excludes re-chargeable mains relays.)	318	338

Table 74

The programme for earlier years was agreed at national level.

The Network met the HSE requirement, but also decommissioned 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 is acceptable, and since WM 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.

Over five years the Network is forecast to de-commission 36km (2%) more than allowed.

8.1.2.2 Services Workload

Replaced and transferred services are expected to be 26,500 (17%) above the allowance over five years. There have been avoidable "bulk relay" services to existing mains.

8.1.2.3 Mains Costs

Reported mains costs are forecast to be marginally 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.

Overall (and after re-allocation of services costs) the network is forecast to be above the 5 year allowance (not re-calculated) by approx. £3m (1.5%).

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 £23m (54%) 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 a revision of the Supplementary Incentive Mechanism and a return to appropriate cost allocation.

There are adjustments to services reflecting contract and direct labour inefficiencies until end 2004/05.

The 2007/08 adjustment reflects workload reductions only.

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 Mains Diversions) All figures £m 2005/06 Prices	2002/03		2003/04		2004/05		2005/06		2006/07		5 year Total		2007/08
Allowed Net Investment	**57.5**		**38.6**		**42.5**		**43.9**		**42.9**		**225.4**		
Total GDN Variance	**-4.7**	**-8%**	**-0.1**	**-0%**	**8.5**	**+20%**	**5.5**	**+13%**	**16.9**	**+39%**	**26.1**	**+12%**	
Mains (as reported)	-5.4	-11%	-7.7	-26%	0.9	+3%	-5.6	-16%	4.9	+14%	-13.0	-7%	
Services (as reported)	0.7	+11%	7.6	+86%	7.6	+81%	11.1	+113%	12.1	+135%	39.1	+90%	
Reported Net Investment	**52.8**		**38.5**		**51.0**		**49.4**		**59.8**		**251.5**		**58.5**
Total GDN Variance (after re-allocation by PB Power)	**-4.7**	**-8%**	**-0.1**	**-0%**	**8.5**	**+20%**	**5.5**	**+13%**	**16.9**	**+39%**	**26.1**	**+12%**	
Mains (after re-allocation)	-4.9	-10%	-5.5	-19%	3.7	+11%	-1.0	-3%	10.4	+31%	2.7	+1%	
Services (after re-allocation)	0.1	+2%	5.4	+62%	4.7	+50%	6.6	+67%	6.6	+73%	23.4	+54%	
Restated Net Investment (after re-allocation)	**52.8**		**38.5**		**51.0**		**49.4**		**59.8**		**251.5**		**58.5**
Wasteful/Unnecessary Actual/Forecast Expenditure	**0.2**		**0.5**		**0.5**						**1.2**		
Adjustments to Actual/Forecast							**0.0**		**0.0**		**0.0**		**1.8**
Mains	0.0		0.0		0.0		0.0		0.0		0.0		0.0
Services	0.2		0.5		0.5		0.0		0.0		1.2		1.8
Ofgem Adjusted Net Investment	**52.6**		**37.9**		**50.5**		**49.4**		**59.8**		**250.3**		**56.7**
Mains	46.1		24.2		36.9		33.0		44.4		184.6		
Services	6.4		13.7		13.6		16.4		15.5		65.6		
Allowed Workload	**6.4**		**11.0**		**11.8**		**13.1**		**12.3**		**54.5**		
Additional Workload	**0.0**		**2.5**		**1.4**		**3.1**		**2.9**		**9.9**		
Deferrable/Unplanned but Predictable	**0.0**		**0.2**		**0.4**		**0.3**		**0.3**		**1.2**		

Table 75

8.2 BACKGROUND

The replacement of metallic mains and services is an essential part of the GDN'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 Network 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 (excluding re-chargeable diversions) All figures km	2002/03	2003/04	2004/05
Ofgem Allowance	285.0	304.4	327.7
GDN Actual	307.8	292.3	318.4
Variance	22.8	-12.1	-9.3

Table 77

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

West Midlands is ramping-up de-commissioning to 367km/yr and over five years will de-commission 36km (2%) more than allowed.

8.4.1.2 Services Volumes

Services Replaced or Transferred	2002/03	2003/04	2004/05
Ofgem Allowance	23,642	32,820	33,063
GDN Actual	18,872	40,899	38,236
Variance	-4,770	8,079	5,173

Table 78

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

There are increasing variances from 2003/04 driven by:

- The ramp-up of the Network programme.
- An insufficient allocation within the allowance.
- Levels of replacement services to existing mains (bulk relays due to condition) are higher than expected and some could have been deferred.

Overall the WM network is forecast to replace/transfer 26,500 (17%) more services than allowed.

8.4.1.3 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)	45.5	22.1	34.0	**101.7**
Re-allocation from Services	0.6	2.2	2.9	**5.6**
Total Mains	**46.1**	**24.2**	**36.9**	**107.3**
Allowance	**51.0**	**29.7**	**33.2**	**113.9**
Variance	**-4.9**	**-5.5**	**3.7**	**-6.6**

Table 79

There are negative variances (under-spends) after re-allocation from services although these are corrected in later years.

Overall the Network is forecast to be above the 5 year allowance (not re-calculated) by approx. £3m (1.5%).

8.4.1.4 Services Costs

Services Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	3 Year Total
Services (as reported)	7.2	16.4	16.9	**40.6**
Re-allocation to Mains	0.6	2.2	2.9	**5.6**
Total Services	**6.6**	**14.2**	**14.1**	**34.9**
Allowance	**6.5**	**8.8**	**9.3**	**24.7**
Variance	**0.1**	**5.4**	**4.7**	**10.3**

Table 80

There are significant and increasing variances driven by the volumes variances detailed in 8.4.1.2 above and:

- A rate of price inflation within the construction sector that is significantly higher than RPI.
- A cost distortion within the Network's EPC contracts caused by limiting the rate of increase of replacement mains to RPI – 2%.
- 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.

Overall (and after re-allocation of some costs to mains) the network is forecast to exceed the allowance by approx. £23m (54%) over five years.

8.4.2 REASONS FOR VARIANCES

Key points raised by West Midlands are:

8.4.2.1 Construction price inflation is higher than that measured by RPI

Allowances are indexed to RPI rather than the equivalent construction index. However, replacement mains and services allowances include real price effects (RPEs, that are additional to RPI) of 7.8% (2002) and 12.0% (2003) reducing to zero in 2007. Over the five years £124m (2000 prices) is included within the mains and services allowances in respect of RPEs.

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

The cost, £41m (2000 prices), of training approx. 300 new recruits/year was included within the Repex mains allowance. In addition, a total of £29m (2000 prices) was allowed for Repex resource costs within the mains allowance.

8.4.2.3 Other relevant price factors include network specific rate reviews and costs associated with contract extensions prior to the introduction of new contracting arrangements from 1 April 2005

At the time of Transco's submissions to Ofgem the EPC contracts were operated on a target cost basis, designed to exert downward pressure on costs; this was changed to a fixed price basis, with annual review, at around the end of 2001. Cost increases over the period will reflect these revisions.

This change, which limited linked replacement mains and services costs to RPI-2% (or thereabouts) whilst allowing other costs individual rates to be reviewed, has inevitably skewed the relationship between mains and services costs.

The contract extensions were primarily to facilitate the sale process (we understand that NGG invited bids for all GDNs) and the transition to the current Alliance/Term contract was a secondary benefit of the extensions.

In extending the contracts (some dated from October 1999) which had been substantially changed over the period, WM deferred re-tendering, which in our view was overdue.

8.4.2.4 No overheads (directly attributable costs) were included in the services Repex allowance

Repex services overheads were included within "Other non-mains Repex" and have been broken out and included in our analysis.

8.4.3 EFFICIENCY ANALYSIS

8.4.3.1 Project Review

A condition mains replacement project (Leek Road, Stoke. Estimated cost £788,556; final cost £1.1m) was reviewed and from the information supplied we can confirm that the design substantially followed the required processes although the project costing was inaccurate through omissions. The project was authorised under the delegated authority of the Network Director.

The causes of the overspend were identified and learning points noted in the completion report but there was no formal re-authorisation of the project.

This project has raised some points of concern and it is recommended that further work is undertaken on a representative selection of projects as part of the five year review.

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 contract rates introduces further uncertainties unless these costs are properly allocated.

Comparative analysis of unit costs has thus proved difficult as within WM 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

EPC

Prior to April 2005 most of the GDN's Repex work was carried out by contractor via EPC contracts. The operation of these contracts is outlined at 8.4.2.3.

On a unit cost basis services are significantly more than the allowance and we estimate that up to £27m (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 overall proportion between mains and services costs. Thus we have re-allocated between 10 - 30% of services costs, in incremental steps, to mains each year.

We judge the increase relative to the move from target costs 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.

Alliance

From April 2005 the NGG entered into an Alliance Contract (one of four within NGG) as the major vehicle for replacement work. The size of Alliance projects enables economies of scale, together with detailed planning and management of the project to improve efficiency. Within the Alliance, the partners work together to optimise replacement projects from the planning process to final completion. This approach exposes the process to a single management body that is incentivised to reduce costs via a target cost and painshare/gainshare arrangement. Productivity improvements are "locked in" through stretched targets prompting the need to innovate and find further savings, and a range of KPIs, including a safety "gateway" ensure a balanced approach to other aspects such as delivery, quality, and people issues.

The target cost is always less than the equivalent Term Contract cost and in 2005/06 the West Midlands Alliance secured savings of 4.7% of agreed target cost.

Term

Smaller replacement projects, reinforcement and some Connections are carried out under Term Contracts with a schedule of rates subject to periodic review and a contract performance management scheme.

Overall

NGG's new contract arrangements are an appropriate development from EPC and engage well with the requirements of the HSE programme. Market rates within the Term Contracts place a ceiling on Alliance costs; developments within the Alliance should, in time impact on the efficiency of Term Contracts.

8.4.3.4 Direct Employees

A small proportion of Repex work is carried out by direct employees, often as a workload balancer for those crews normally employed on emergency work.

WM network is running a number of initiatives to improve productivity, e.g. Coaching 4 Excellence, Last Mile Logistics, and aims to improve flexibility and productivity through up-skilling where appropriate.

A revision to the management structure - The Way Ahead (TWA) will remove the first line supervisor to be replaced with a Performance Engineer, supported by a Technical Engineer.

We understand that for a number of years personal/crew productivity (outside of the E & MW operation) was not recorded or available to managers. WM has put measures in place to improve productivity (unproductive time is falling) and is working in collaboration with shop stewards to deliver improvements. 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 at risk until 2005 when we understand QB5 was introduced and have adjusted costs by 7.5% to reflect this.

8.4.3.5 Materials Procurement & Wastage

Overall, there were no major concerns about the efficiency of materials procurement. Wastage of PE is monitored and estimated currently at around 6% (this is targeted to improve within the Alliance) and satisfactory. There is an arrangement with one of the manufacturers to return material to the plant for re-cycling.

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 network's costs – 14% in 2004/05, the same as the average for all GDNs 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.

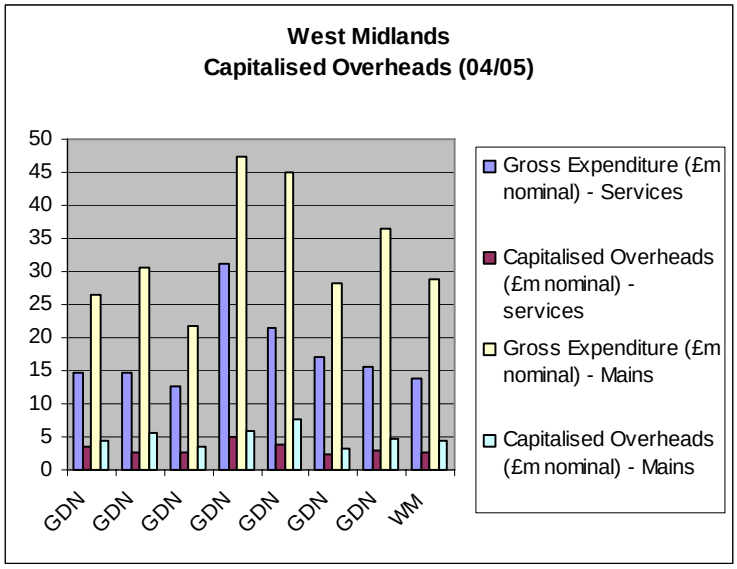

Figure 37

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	**52.8**	**38.5**	**51.0**	**142.2**
Mains (as reported)	45.5	22.1	34.0	101.7
Re-allocation from Services	0.6	2.2	2.9	5.6
Total Mains	46.1	24.2	36.9	107.3
Services Net Investment	**6.6**	**14.2**	**14.1**	**34.9**
Wasteful/Unnecessary	**0.2**	**0.5**	**0.5**	**1.2**
Mains	0.0	0	0	0.0
Services	0.2	0.5	0.5	1.2
Ofgem Adjusted Net Investment	**6.4**	**13.7**	**13.6**	**33.8**
Allowed Workload	**6.4**	**11.0**	**11.8**	**29.2**
Additional Workload	**0.0**	**2.5**	**1.4**	**4.0**
Deferrable/Unplanned but Predictable	**0.0**	**0.2**	**0.4**	**0.6**

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. Elements of the services workload could have been deferred.

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)	45.5	22.1	34.0	28.5	38.8	169.0
Re-allocation from Services	0.6	2.2	2.9	4.5	5.5	15.7
Total Mains	**46.1**	**24.2**	**36.9**	**33.0**	**44.4**	**184.6**
Allowance	**51.0**	**29.7**	**33.2**	**34.1**	**34.0**	**181.9**
Variance	**-4.9**	**-5.5**	**3.7**	**-1.0**	**10.4**	**2.7**

Table 82

The forecast expenditure in the current year is expected to correct earlier underspend.

Services Repex All figures £m 2005/06 Prices	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Total
Services (as reported)	7.2	16.4	16.9	20.9	21.0	82.5
Re-allocation to Mains	0.6	2.2	2.9	4.5	5.5	15.7
Total Services	**6.6**	**14.2**	**14.1**	**16.4**	**15.5**	**66.8**
Allowance	**6.5**	**8.8**	**9.3**	**9.8**	**8.9**	**43.4**
Variance	**0.1**	**5.4**	**4.7**	**6.6**	**6.6**	**23.4**

Table 83

Variances (overspends) continue, despite the re-allocation of some costs to mains, driven by higher volumes and increased costs.

8.5.2 REASONS FOR VARIANCES (APR 2005 TO MAR 2007)

Reasons for the variance are unchanged from 2002/03 to 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	**52.8**	**38.5**	**51.0**	**49.4**	**59.8**	**251.5**	**58.5**
Mains (as reported) 2.3.1.3	45.5	22.1	34.0	28.5	38.8	**169.0**	35.2
Re-allocation from Services 2.3.1.3	0.6	2.2	2.9	4.5	5.5	**15.7**	0.0
Total Mains	**46.1**	**24.2**	**36.9**	**33.0**	**44.4**	**184.6**	**35.2**
Services Forecast Net Investment	**6.6**	**14.2**	**14.1**	**16.4**	**15.5**	**66.8**	**23.3**
Adjustments	**0.2**	**0.5**	**0.5**	**0.0**	**0.0**	**1.2**	**1.8**
Mains 2.3.1.3	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0
Services 2.3.1.3	0.2	0.5	0.5	0.0	0.0	**1.2**	1.8
Ofgem Adjusted Forecast	**6.4**	**13.7**	**13.6**	**16.4**	**15.5**	**65.6**	**56.7**
Allowed Workload	**6.4**	**11.0**	**11.8**	**13.1**	**12.3**	**54.5**	
Additional Workload	**0.0**	**2.5**	**1.4**	**3.1**	**2.9**	**9.9**	
Deferrable/Unplanned but Predictable	**0.0**	**0.2**	**0.4**	**0.3**	**0.3**	**1.2**	

Table 84

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

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

There are continuing adjustments to services up to and including 2004/05 reflecting contract and direct labour inefficiencies. Adjustments cease in 2005/06 on the termination of EPC arrangements and the introduction of QB5. The 2007/08 adjustments reflect changes to workload forecasts.

8.5.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

[redacted]

8.5.4.1 Recommendations

Volumes

For mains we have accepted the forecast volumes.

For services the GDN is forecasting an acceptable 111 service jobs (relays or transfers) per km of de-commissioned main.

Minor adjustments have been made to restore the relationship of relaid and transferred services to historic proportions and reduce the number of services relaid to existing mains. Non-domestic services have also been reduced.

Costs

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, the GDN 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 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 no reduction is required.

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	204.5	46.1	9.4	0.9	204.5	50.7	10.4
>75mm to 125mm	85.4	60.5	5.2	0.5	85.4	66.6	5.7
>125mm to 180mm	23.3	118.6	2.8	0.3	23.3	130.6	3.0
>180mm to 250mm	10.6	224.9	2.4	0.2	10.6	247.3	2.6
>250mm to 355mm	22.4	244.1	5.5	0.5	22.4	268.5	6.0
>355mm to 500mm	21.2	319.5	6.8	0.7	21.2	351.4	7.4
>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	367.4		**32.0**	**3.2**	367.4		**35.2**

Table 85

Replacement Services Domestic	As Presented				Proposed inc O/H		
	Vol	Unit Cost	Total	O/H	Vol	Unit Cost	Total
	Units	£/unit	£m	£m	Units	£/unit	£m
Relaid services associated with mains replacement	28,609	345.2	9.9	1.7	20,386	427.0	8.7
Relaid services not associated with Mains replacement (bulk relays)	1,681	923.1	1.6	0.3	500	1446.9	0.7
Services relaid after escape	4,444	851.8	3.8	0.6	4,444	995.6	4.4
Service test & transfer to new or other main	12,162	258.0	3.1	0.5	20,386	283.9	5.8
Reposition domestic meter - service relays	0	0	0.0	0.0		0.0	0.0
Purge & relight after domestic service work	60,027	9.2	0.6	0.1	60,027	10.7	0.6
Service relay domestic meterwork	0	0	0.0	0.0	-	0.0	0.0
Other domestic services	0	0	0.0	0.0	-	0.0	0.0
Total domestic services	106,923		**18.90**	**3.2**	105,742		**20.3**

Table 86

Replacement Services Non Domestic	As Presented				Proposed inc O/H		
	Vol	Unit Cost	Total	O/H	Vol	Unit Cost	Total
	Units	£/unit	£m	£m	Units	£/unit	£m
Non-domestic service replacement	300	1259.6	0.38	0.07	300	1493.0	**0.4**
Non-domestic meterwork associated with mains replacement	0						
Other non-domestic service work	0						
Total non domestic services			**0.4**	**0.1**			**0.4**

Table 87

Multiple Occupancy Buildings (Risers >20m)

West Midlands has forecast expenditure of £0.8m (2007/08) for the replacement of risers & laterals in high-rise blocks. We regard this as acceptable for the year subject to the recommendation below.

The Network 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.

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 network 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 reasonable agreement between the Ofgem Price Control and WM actuals/forecast.

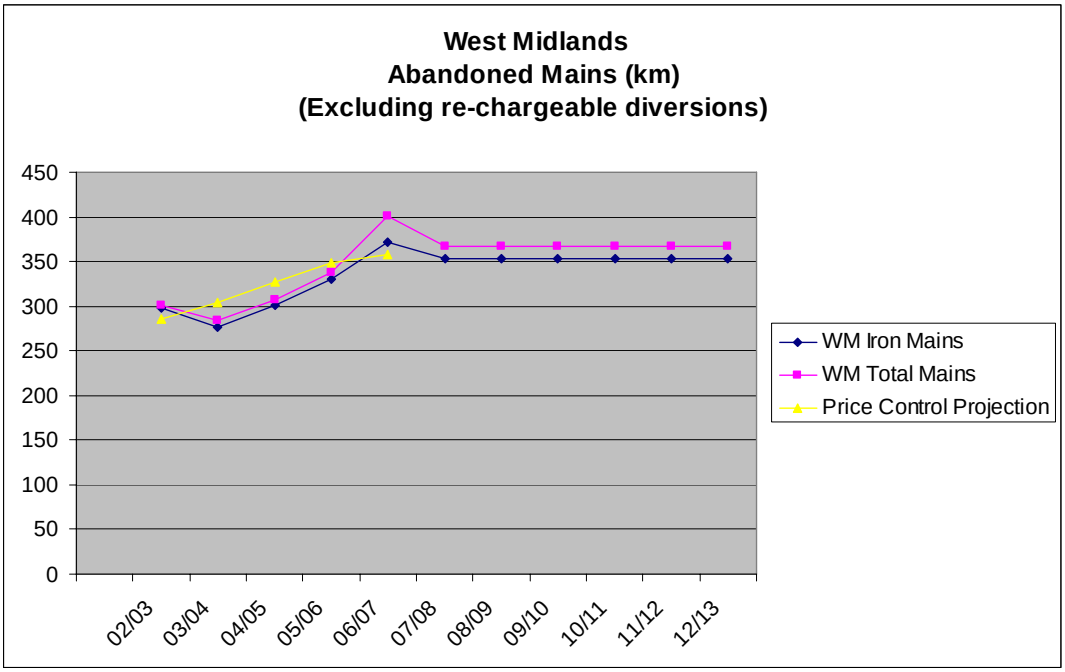

Figure 38

The network is ramping-up de-commissioning to a long-term rate of 353 km/yr (367 km/yr with associated mains). It is not known why the 2006/07 forecast is higher than this as the Network has met its programme in previous years.

8.6.1.2 Services Activity

WM has experienced higher services densities than allowed in the current control.

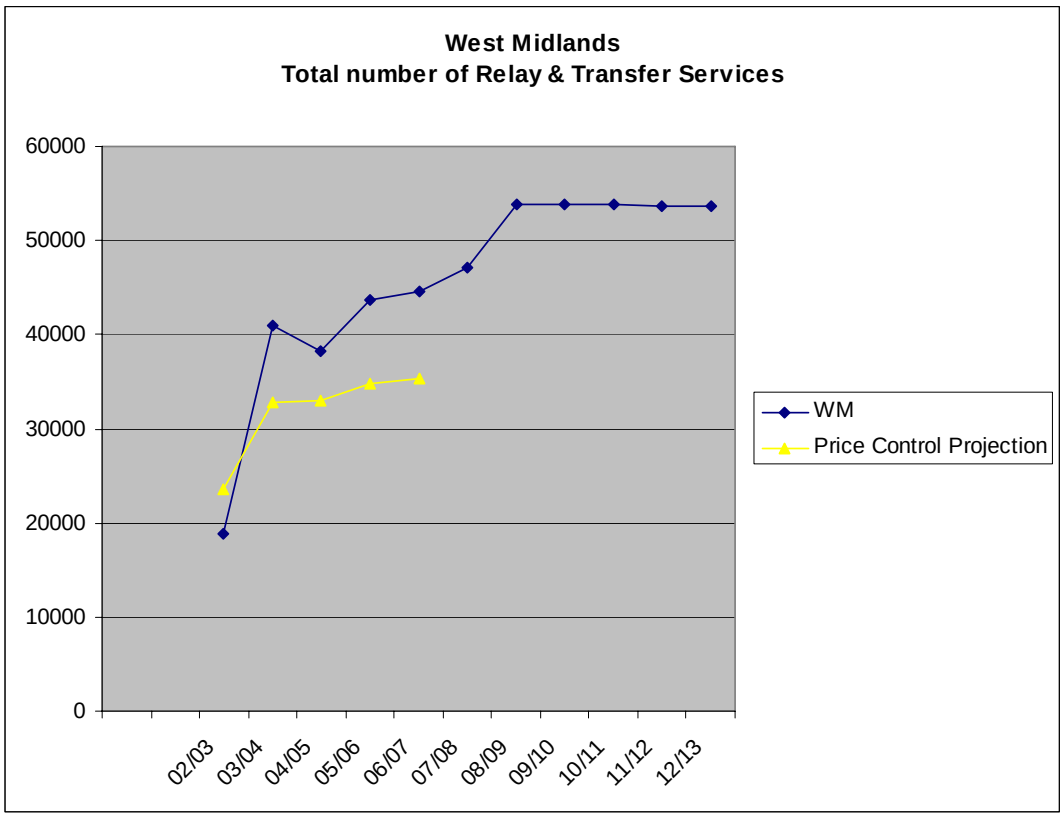

Figure 39

The Network's service work, associated with mains replacement, is accepted, but it has added to services volumes with a substantial quantity of services (12,000 actual/forecast over the period) relaid to existing mains.

Going forward volumes will reduce by about 1000 services/yr to account for this.

8.6.1.3 Forecasting Issues

Workload

The ramping-up of de-commissioned mains is completed in 2006/07 and the GDN then has to retain, rather than increase its workforce each year. This should 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

The Network has been active in updating its contracts moving from DEPC through EPC to Alliance and Term contracts in seven years or so. The Alliance arrangement appears well suited to the current and expected Repex workloads and is generating cost-savings, although these will be more difficult to achieve as targets are stretched.

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 Network 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, although the forecast reduction in the number of public reports of escapes is modest and is to be reviewed by the GDN. 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)

WM's BPQ submission listed no named replacement projects on which there will be expenditure in the current review period. However, there is c£2m of work indicated as small unnamed projects. This is matched by similar contributions and is therefore presumed to be all rechargeable and therefore allowable.

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	**0.4**		**0.5**		**0.0**	**0.0**	**0.0**	**0.9**		
Total GDN Variance[4]	**-0.4**	**-100%**	**-0.5**	**-100%**	**-0.1**	**-0.1**	**-0.1**	**-1.2**	**-133%**	
Reported Net Investment	**0.0**		**0.0**		**-0.1**	**-0.1**	**-0.1**	**-0.3**		**-0.7**
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	**0.0**		**0.0**		**-0.1**	**-0.1**	**-0.1**	**-0.3**		**-0.7**
Allowed Workload	**0.0**		**0.0**		**-0.1**	**-0.1**	**-0.1**	**-0.3**		
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 88

[4] Variance percentage values not included where allowances are zero.

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	0.0	0.0	0.4	0.4
	Allowance	0.4	0.5	0.0	0.9
	Variance	-0.4	-0.5	0.4	-0.5
Contributions	Actual	0.0	0.0	0.5	0.5
	Allowance	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.5	0.5
Net	Actual	0.0	0.0	-0.1	-0.1
	Allowance	0.4	0.5	0.0	0.9
	Variance	-0.4	-0.5	-0.1	-1.0

Table 89

9.3.2 REASONS FOR VARIANCES

In addition to WM's actual Net Repex of -£0.1m they had an allowance of £0.9m, leading to a final net variance of -£1.0m for this period.

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	**0.0**	**0.0**	**-0.1**	**-0.1**
Wasteful/Unnecessary Expenditure	**0.0**	**0.0**	**0.0**	**0.0**
Ofgem Adjusted Net Investment	**0.0**	**0.0**	**-0.1**	**-0.1**
Allowed Workload	**0.0**	**0.0**	**-0.1**	**-0.1**
Additional Workload	**0.0**	**0.0**	**0.0**	**0.0**
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	0.0	0.0	-0.1	**-0.1**	**-0.1**	**-0.3**	**-0.7**
Adjustments	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	**0.0**
Ofgem Adjusted Forecast Net Investment	0.0	0.0	-0.1	**-0.1**	**-0.1**	**-0.3**	**-0.7**
Allowed Workload	0.0	0.0	-0.1	**-0.1**	**-0.1**	**-0.3**	
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 91

LTS Repex All figures £m 2005/06 Prices		2002/03	2003/04	2004/05	2005/06	2006/07	5 year Total
Gross	Actual	0.0	0.0	0.4	0.3	1.2	1.9
	Allowance	0.4	0.5	0.0	0.0	0.0	0.9
	Variance	-0.4	-0.5	0.4	0.3	1.2	1.0
Contributions	Actual	0.0	0.0	0.5	0.3	1.3	2.1
	Allowance	0.0	0.0	0.0	0.0	0.0	0.0
	Variance	0.0	0.0	0.5	0.3	1.3	2.1
Net	Actual	0.0	0.0	-0.1	-0.1	-0.1	-0.3
	Allowance	0.4	0.5	0.0	0.0	0.0	0.9
	Variance	-0.4	-0.5	-0.1	-0.1	-0.1	-1.2

Table 92

9.4.2 REASONS FOR VARIANCES

Contributions for rechargeable works have exceeded gross costs and set against an allowance of £0.9m this leads to an underspend of £1.2m for the five year period.

9.4.3 REVIEW OF FORECAST (APR 2005 TO MAR 2007)

West Midlands will underspend their allowance in this two year period by £0.2m.

9.4.4 REVIEW OF FORECAST (APR 2007 TO MAR 2008)

WM are showing a net expenditure of £-0.7m for 2007/08. This is allowable.

9.5 FORECAST TRENDS (2002 TO 2013)

9.5.1 HIGH LEVEL TREND

There are no named projects >£0.5m in replacement expenditure shown beyond 2006/07 in WM's submission. There is a total of c£7m of work shown from 2006/07 to 2012/13 with matching contributions. This implies that all planned replacement work for pipelines will be rechargeable and therefore zero net cost.

9.5.2 COMMENTS ON TREND

The proposed expenditure indicates a steady small workload of rechargeable projects.

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 in the pre-sale NGT regime. Much of the expenditure in 2005/06 and possibly 2006/07 will also have been committed under the same processes.

West Midlands has indicated no changes in policies which will affect the decision making processes for investment in the network.

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 networks) will identify capacity shortfalls in the network and will validate potential solutions. However, the model will only deliver results as good as the data fed into it. The Network Design and Planning Report for the WM Network was satisfactory in this respect (see Appendix 1).

There is no stated intention by WM to move policy away from the current 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). WM gave a comprehensive response to this in their submission.

10.2.1 PROJECT APPROVAL PROCESSES

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

10.2.2 CONTROLLING COSTS

The network has a well documented and well managed cost control processes which gives confidence that variances are monitored, controlled and understood.

10.2.3 MANAGEMENT OF INVESTMENT TRADE-OFFS

The Network gave a very comprehensive response to narrative questions relating to asset management, managing lifetime costs for investment, and balancing these with operation and maintenance costs:

"National Grid's Asset Management System follows the principles of HS(G)65, as described in the Health and Safety Executive Document 'Successful Health and Safety Management'. It is based on the principle of continuous improvement and is consistent with BSI-PAS55.

The strategies developed are typically long-term asset strategies which look to manage the system at lowest cost over its expected life. They will take into account anticipated changes over the medium term and put forward appropriate investments for the expected life of the asset and its current condition. Policies are generally developed to codify these approaches and, through associated procedures, to give detailed guidance in their implementation.

This [entails] detailed assessment, prioritisation, detailed planning and scheduling, typically balancing risk-reduction against the cost and resource constraints. NGGD is working to centralise asset management information to enable better deployment of national decision support tools (DSTs), so helping optimisation of investment within an asset class. The DSTs' outputs are almost always then validated using actual network experience.

National Grid undertakes a network risk assessment to identify those areas of its operations that affect the safe management of the flow of gas and the provision an emergency response service, as described in the Safety Case. National Grid has a formal risk assessment process which works from the basis of business objectives and the threats to those objectives. Asset related threats to, for example, safety and continuity of supply (as set out in the Safety Case), are assessed in the context of the likelihood of occurrence, the impact if they were to materialise and the existing control framework.

Action plans are developed to manage risks to an acceptable level. Capex and Repex investment decisions are made accordingly, with priority given to those which have the highest risk rating. There are other methods used that look at the risks associated with specific assets, which also drive asset management investment decisions and of assessing and prioritising specific asset risks, namely quantitative and qualitative.

In principle all costs are considered – that is to say the ***costs of funding an investment****, together with any associated ongoing costs that may be caused by the investment, and any costs that may be avoided if the investment is made*

Pipeline projects are identified, defined and prioritised by Network Strategy Planning in response to forecast demand and forecast shortfalls in capacity.

As pipeline projects are responding to forward indicators of capacity shortfalls and licence obligations for peak capacity, there is limited scope to prioritise or rank investments. However, due to the significant cost of major pipeline projects, considerable attention is paid to definition, analysis and business case to prove that the project which goes forward is the best solution to meet the capacity and storage need.

Once a capacity shortfall has been modelled and confirmed, a case paper will be raised to resolve the issue. In line with National Grid's robust capital controls, these papers will frequently be presented to the main Distribution Project Sanctioning Committee (DPSC) where they will be subject to detailed and broad review and scrutiny and only where investment is shown to be necessary and efficient will approval be given.

There is typically a range of potential reinforcement project options available to the planning team including pressure elevations with or without governor uprating or the laying of additional mains. These options are assessed over a 5-10 year timeframe and are reviewed against the broader network strategy to identify potential to combine projects to address root causes rather than simply to resolve the single issue in isolation."

These statements give a high level of confidence that there is an embedded process in this Network to investigate and manage potential investment trade-offs.

10.2.4 ENVIRONMENTAL AND SAFETY OBLIGATIONS

The Network has given a very comprehensive response to the safety and environmental questions in the BPQ. They have a comprehensive suite of safety and environmental standards which apply to all their pipelaying and support activities.

They have not indicated an intention to change any policies. In LTS terms, environmental issues feature 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 the Network intends to lessen this obligation.

The same commitment applies to low pressure gas holder sites and the containment and treatment of contaminated water and land.

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: NATIONAL GRID GAS

A1.2.1 SUMMARY OF DATA SUPPLIED

National Grid Gas consists of the GDNs London, East of England, West Midlands and North West. London and EoE GDNs contain the North Thames and East Midlands LDZs respectively with the Eastern LDZ split between London and EoE.

Replies have been supplied for all questions and the level of data provided gives a comprehensive response. Replies were provided for National Grid Gas as a whole and, where appropriate, separate information was given for each GDN.

A1.2.2 SUMMARY OF FINDINGS

Having examined the data provided for the National Grid Gas, we can confirm that it was sufficient to ascertain the planning capability within each GDN.

The conclusion is that the planning works for development of the National Grid Gas and in particular that of the local transmission and storage system has been carried out in a competent manner.

A1.2.3 PROCESS REVIEW

i) Additional narrative questions relating to LTS and Storage Capacity

Diagrams in PDF format 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 maximum demand days for each year and each of the five LDZ systems within National Grid Gas were provided. These gave sufficient information to allow identification of entry and exit flows and pressures at key points and comparison of forecast and recorded pressures indicates that the network analysis models are consistent with those experienced by observation of system control data.

iii) LTS network capacity report at 1 in 20 peak day demand for each year.

A set of tables containing forecast flows and pressures for each year to 2012/13 was provided for each network. These appeared to show consistency.

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

A response giving information on network problems and the proposed solutions/plan of action for each was provided. The response particularly highlighted acute problems in central London and the need to formulate a comprehensive plan taking many diverse factors into account including the future of the MP system and its impact on usable low pressure storage. Problems were also highlighted in the NW network.

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

An adequate description of the process was provided indicating an acceptable level of understanding within the NGG as a whole and each of the GDNs.

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

Adequate information regarding changes to the methodology, using direct econometric modelling, and the reasons were provided. We regard the response as reasonable.

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 demands for GBNA and Falcon network analysis models and how the demands are derived for both was provided. We believe that this indicates an appropriate awareness of demands across pressure tiers and an adequate understanding of the processes involved.

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

No changes to the methodology other than a review of parameters involved are anticipated. The statement is also made that the methodology will be reviewed from time to time in the future which we consider provides a degree of confidence that the demand planning process may be further developed to take advantage of any observed changes in energy usage.

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

Tables of forecast 1 in 20 demand compared to the revised 1 in 20 for each of the last 3 years were provided for each GDN which show that NGG is monitoring and paying attention to the peak demand forecasting outcome and processes.

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

Adequate information was provided to give an insight into the methodology used within the NGG although no detail, other than reference to a procedure, was given regarding contributions.

xi) Explain how diurnal storage requirements are determined.

A brief, satisfactory, overview of the process was provided.

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

A description of the programmes used was provided and reference made to the procedures utilised for above 7 bar analysis. The information gives a satisfactory overview of the process and establishes some reason for confidence in the network analysis models used although no information relating to the validation of any specific networks was provided.

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. However, the “Final” diurnal storage requirements used for the LDZs do not match those predicted by the Storage Simulation Model by often quite considerable amounts and, although the process includes for some “smoothing” and “sensitivity analysis”, no evidence has been produced explaining why there is so much deviation from the Storage Simulation Model. We consider this to be of some concern and this will be followed up in the main review.

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 NGG was undertaken to ascertain whether or not the strategic approach and process is robust and effective in minimizing costs whilst maintaining security of supply.

A2.2 SOURCING STRATEGY

NGG have provided a very comprehensive sourcing strategy.

The strategy differs depending on the form of procurement being undertaken and is driven by both risk profile and the commodity value. They have categorized procurement into four areas:

i) Capital Expenditure - projects subject to competitive tender arrangements

ii) Materials - security of supply, new suppliers and products

iii) Commodities - medium to long term arrangements that minimize the total cost of acquisition

iv) Their strategy considers the needs of all parts of the business and applies the appropriate approach for each one.

A2.3 POLICIES AND PROCEDURES

NGG have a comprehensive set of policies and procedures which demonstrate a well established procurement process. They have been regularly updated to reflect amendments and changes in legislation and ways of working.

A2.4 STRATEGIC PURCHASES

A2.4.1 PE PIPE AND FITTINGS

These products are supplied by two suppliers, Uponor and GPS. Uponor have the major share of the business, [redacted]. The relationship with Uponor is described as one of performance partnership. Uponor is incentivised to develop new products which reduce material costs.

The strategy of NGG in awarding the majority of its business to one supplier prior to and since the sale of the Networks has resulted in one supplier being very dominant in the UK gas market. Competition is limited and therefore the ability to reduce costs in this area may become more difficult for all networks.

A2.4.2 PROTECTIVE CLOTHING

The contract for protective clothing expires at the [redacted]. The spend for this contract for 2005 is [redacted].

A2.4.3 STEEL PIPE AND FITTINGS

Steel pipe is purchased from Corus and the total spend for 2005 was [redacted]. The steel fittings are purchased from a number of suppliers and the total spend for 2005 was [redacted]. Steel products have been subject to price increases due to the volumes being imported by China. Over recent months prices have stabilized as China has become increasingly more self sufficient and has itself begun to export to Europe.

A2.4.4 CONTRACTORS (FOR PIPE LAYING AND REPLACEMENT ACTIVITIES)

The Engineering Period Contracts have expired and NGG have retendered this work. They now have Alliance and Term contracts in place. The anticipated total spend for 2005/2006 for the alliance contracts is circa [redacted] and for the term contracts is circa [redacted].

A2.4.5 LTS

Project management services for the Local Transmission System work are typically provided via Construction as part of Transmission's activities. Spend for 2005 was £1m.

A2.4.6 MAINS TO METER

Two suppliers provide these fittings to NGG, Crane (Wask) and George Fischer Sales. Spend for 2005 was [redacted].

Limited information has been provided on the above strategic purchases.

A2.5 PROCUREMENT PROCESS

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

A2.5.1 COST EFFECTIVENESS

In general the procurement of goods and service is subject to the tendering process as specified by the European Utilities Directive with the exception of those less than £20,000 in value.

This process demonstrates that the majority of procurement requirements are rigorously market tested which should result in a cost effective contract.

A2.5.2 TOTAL COST OF ACQUISITION

The process looks to achieve best total cost and takes into account all costs associated with the specific procurement.

A2.5.3 SECURITY OF SUPPLY

This is achieved by mitigating the risk by holding stock within the supply chain, both internally and with the suppliers and by having multi-sourcing arrangements.

A2.5.4 HEALTH SAFETY AND ENVIRONMENT

A supplier qualification process is undertaken to assess a supplier's health, safety and environmental and quality credentials. The terms and conditions of contract also specify particular conditions that the supplier must adhere to. The contract management process also monitors and checks compliance during the life of the contract.

A2.5.5 SPECIFICATIONS

Suppliers are required to provide evidence of compliance to specification by providing an evidence folder. The majority of suppliers self certify but with the industry moving towards BSI specifications compliance will be evident by Kite mark.

A2.5.6 COST REDUCTION

NGG have provided a very comprehensive response to this and have demonstrated that they have a robust process in place to encourage their suppliers to reduce costs. A number of mechanisms are in place to incentivise cost reduction throughout the life of a contract.

A2.5.7 SPEND DATA

Spend data is captured via SAP for gas activities and some business support activities whilst other costs such as information services costs are captured through an other ERP system Oracle.

Data is consolidated through ARIBA and this is available from October 2002.

A2.5.8 PROVISION OF LABOUR

There are Alliance, Term and Agency contracts in place which support the supply of labour; however NGG recognize that the only sustainable long term solution to guaranteeing security of supply in this area is for the industry to recruit, train and retain more skilled labour.

A2.5.9 STOCK LEVELS

A number of factors are taken into account when establishing stock levels, these include forecast and historical demands as well as lead times, seasonal demand patterns etc.

A2.5.10 WAREHOUSING

Their warehousing operation is measured by using a range of efficiency indicators.

A2.5.11 EMERGENCY STOCKS

For gas distribution materials, emergency stocks are held at the 23 logistics centres within the network, with a strategic emergency stock held at the National Distribution Centre. The full range of materials held at the NDC is also available to support emergency requirements.

The above is a summary of the key responses provided. Overall NGG have provided evidence that they have robust processes that support their sourcing strategy.

A2.6 MAINS AND SERVICE REPLACEMENT

From September 1999 EPCs (Engineering Period Contracts) were introduced on a phased basis across the various LDZs (local distribution zones) as the old DEPCs expired. The move resulted in larger contracts with fewer players.

The initial contracts were set up with target costing. The contracts were awarded for 3 years with an option to extend for a further 2 years. The aim of the target costing and the introduction of the EPCs was to establish consistency across the business using the same terms and conditions.

In April 2002 the contracts were revised and negotiated established rates were introduced, this was to meet the PCR and the introduction of the Regulatory Incentive Mechanism (RIM). Rates were bundled by diameter placing most of the construction risk with the contractor, whilst delivering cost certainty that Transco required to perform under RIM. Yearly rate reviews were also introduced with an RPI-X mechanism and associated performance metrics.

During the EPC there have been occasions when the incumbent contractor has not been able to perform to the standards required by Transco or deliver the workload. On these occasions the contract was flexed to the adjacent contractors who could perform. On other occasions Transco went back to the market and introduced additional players on EPC framework agreements. This was done to stimulate competition and introduce new resources.

The average annual indices from 2002 to 2005 and the EPC claims during that period were as follows:

Allowed RPI	3%
Allowed RPI-X	1%
Cons Baxter	7%
[redacted]	

A2.6.1 REVIEW OF STRATEGY

In 2003 a further review took place of NGG's contracting arrangements. The key drivers for change in the strategy for Mains and Service Replacement were:

Resourcing - attracting and retaining professional skilled resources

Safety - the drive to reach zero accidents

Environment - coordination of NRSWA and TMA

Quality - right first time through better design

Values - partners who demonstrate the right behaviours in a long term relationship

Competition - for quality resources in a high demand market from other utilities

The results of the review were to tender for Alliance and Terms Contracts.

Alliance contracts deliver the majority of NGGD's mains replacement programme (circa 80%), typically in metropolitan areas. Efficiency incentives are maintained through gain share mechanisms related to actual costs versus target costs.

The first year of the alliance contracts has produced a gain share payment [redacted] and efficiency for National Grid of [redacted] of the target cost. The target cost for the first 12 month period was [redacted] and the actual cost across all alliances was [redacted].

Term contracts typically deliver non alliance seed pipe replacement work, plus support for emergency work and post 1st July 2005, domestic Connections work. Efficiency incentives are maintained in a similar manner to the EPC contracts in that payment is made in accordance with a contract performance management scheme.

The current contracts in place expire as follows:

Alliance contracts: 31st March 2013 with an option for a 5 year extension

Terms contracts: 31st March 2008 with an option for a 2 year extension

A2.7 MATERIAL COSTS

NGG have provided details (these have been supplied by their main supplier) of their prices for PE compared to market trends which demonstrates that they are paying well below those market rates. They work on an open book approach enabling them to have transparency of costs.

They are assuming that PE pipe and fittings will rise broadly in line with RPI. They have stated that all other capital and replacement material costs (e.g. road materials etc) are provided by the contractor and included in contractors charges and hence are a component of their overall assumptions in this area.

Whilst they have provided some information regarding PE, this is not comprehensive and they have not given any real indication on any other market trends. The evidence provided does not demonstrate a clear understanding of how material costs are likely to be affected in the period to 2013.

A2.8 CONNECTIONS

A2.8.1 FULCRUM - CONNECTIONS

In 1999 an enforcement order was placed on Transco and Connections activities had to be separated out from other activities. In July 2001 all the connection activities within each LDZ were merged into one organisation - Fulcrum Connections. The contract was made up of two key elements; a management fee and works costs billed on a monthly basis.

Engineering period contracts were tendered in 1999, specifically for Connections work. The process used was very thorough and followed EU directives and Transco polices and procedures.

All of Fulcrums' procurement processes are aligned with the Transco policies and procedures.

Within the information provided by NGG there is a policy document written by Fulcrum providing their Procurement Strategy. This clearly states that all of their procurement will follow the Transco procedures.

A2.8.2 FULCRUM EPCS

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.

Reviews of these rates took place annually to accommodate changes in the direct cost base. Baxter indices were used as a guide for this review but the contract does not specifically refer to Baxter.

Reviews also took place for trigger events that caused significant change to the economics of the contract. Evidence provided by NGG demonstrates that with the exception of the North West rates increased by [redacted] more than Baxter or less than the Baxter percentage.

The North West rates were increased significantly in July 2005 [redacted] making them significantly higher in comparison to the Baxter figure for Jan 2006 [redacted].

Separation of Connections activities - this would have had a direct impact on the ability of Fulcrum to obtain the best market rates for labour as the work is of an awkward nature (geographically spread, low volume and has to be done in isolation from other activities). In order to attract contractors to this work a premium is likely to have to be paid, especially in high work load periods where other Gas Work or other Utility work would be more attractive and profitable.

Overheads are high due to regulatory constraints and complex systems to monitor performance.

There have also been difficulties with consistency of EPC contractors, in one instance a contractor pulled out and the contract had to be renegotiated which meant rate increases. Other geographical areas have had problems with performance and safety issues which have also meant alternative contractors being brought in.

A2.8.3 MATERIALS PROCUREMENT

Materials required by Fulcrum are obtained via Group contracts therefore benefiting from those rates. These materials have had the benefit of NGG group leverage which should ensure that the best prices are available. As long as these contracts are being used fully then there should be no reason to doubt the procurement process being used.

The only area that has not been covered by the information provided is that of contract management of the Fulcrum EPC contractors. As Fulcrum are not specifically involved in this process it is difficult to gain an understanding of how this works. Although the contractual arrangements that have put in place are robust and should ensure that the contract works as it was designed to.

A2.8.4 SPC - SERVICE PROVIDER CONTRACT

The Service Provider Contract was set up between NGG and Fulcrum Connections to provide Connections activities.

The contract was let for a [redacted] period of which [redacted] was an exclusivity period. For installation and commissioning of meters, data loggers and associated equipment this period was 12 months from the commencement of the contract.

The contract commencement was [redacted] and it is due to expire [redacted]. The terms and condition for all geographical areas are the same.

The contract allows for the Employer (NGG) to have the right to require the Service provider to acquire certain materials from nominated suppliers otherwise the Service Provider is responsible for purchasing the materials to allow the works to be performed. If the Service provider can buy the materials cheaper elsewhere than from the nominated supplier they may obtain the materials from that alternative source if it is approved in writing from the Employer. The opportunity for Fulcrum to obtain best market prices is available but there is no evidence to indicate that alternative sources have been appropriate or used.

A2.8.5 DOMESTIC CONNECTIONS ACTIVITIES

The domestic Connections activities are now done within the Term contracts

A2.9 LTS

From the information provided it seems that project management services are done in house. There is no information regarding any of the procurement activity that takes place for other elements of the LTS projects.

A2.10 SUMMARY

National Grid have demonstrated that they have a robust process for procurement. Their strategy reflects the aims of their business.

Their procurement is well established and the majority of their spend is captured by contracts which have been competitively tendered and therefore market tested.

Most of their contracts were tendered prior to the network sales and would have had the benefit of large volumes. These volumes have now decreased and the purchasing power of NGG will not be as powerful as it once was. This will impact on the prices they are able to obtain in the future.

It is therefore positive that NGG have reviewed their strategies for mains and service replacement which from the evidence provided are showing efficiency gains for NGG after their first year of working. NGG have also stated that they encourage new suppliers and the development of new products which will increase competition in the market place and reduce material costs into the future.

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. 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.

The value of performance adjustments for the NGG retained networks is summarised below:

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 [redacted] 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 spilt 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 to not believe the 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 manage 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.

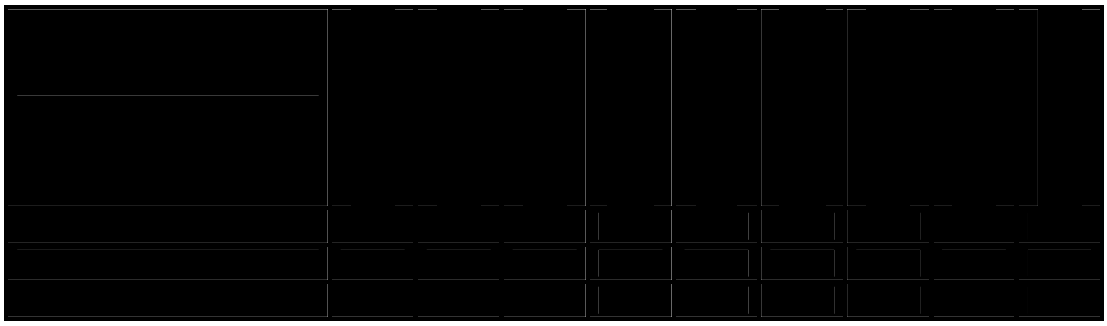

Table A4 - 8

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	2001Q1	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 is 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					
	2001	2002 Qtr1	2002/03	2003/04	2004/05 *forecast values*	Total
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					
	2001	2002 Qtr1	2002/03	2003/04	2004/05 *forecast values*	Total
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					
	2001	2002 Qtr1	2002/03	2003/04	2004/05 *forecast values*	Total
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 reason for the additional expenditure are:

i) An FDCS (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
[redacted]								
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 careful 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.

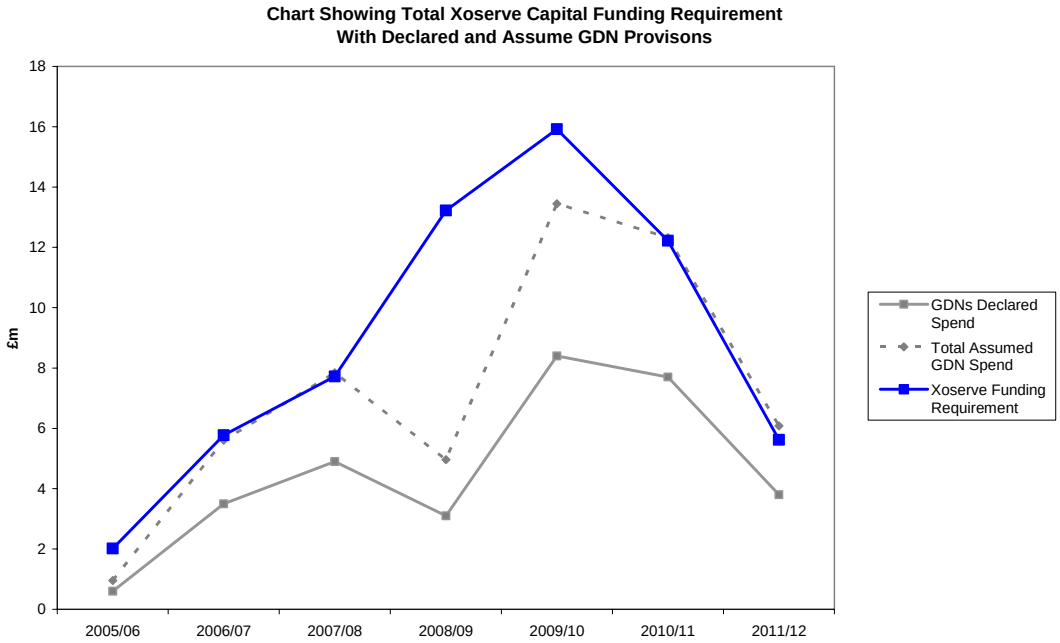

Figure A6 - 1

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 - LOWER QUINTON TO KINGS COUGHTON

A7.1 SUMMARY OF PROJECT

The Construction of 18.2km of 1200mm diameter high pressure steel pipe from Lower Quinton block valve to Kings Coughton AGI: the construction of a volumetric offtake at Lower Quinton and modifications to Kings Coughton AGI. This project provided 87% of the diurnal storage shortfall of the West Midlands LTS.

This project was selected because it was a major pipeline project and managed to remain within budget at a time when other projects were overspending.

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 clearly demonstrated that this pipeline project was required for winter 2003 to avoid a failure to supply statutory loads in West Midlands and to mitigate a shortfall in diurnal storage in the LTS.

The project justification paper reviewed alternative solutions and we are content that all reasonable alternatives were included.

We support the premise that this project was necessary and was the best solution available.

We have not examined the procurement processes for the major materials. The line pipe was obtained through Transco Procurement and Logistics procurement process.

We have examined the procurement processes for the construction works contract and are content that these were appropriate and efficient.

The project was within a reasonable tolerance of budget/allowance.

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 statutory loads and a shortage in diurnal storage in the LTS for peak conditions.

A7.3.2 PROCUREMENT

i) Materials

We have not examined the procurement processes for the major materials. The line pipe was obtained through Transco Procurement and Logistics.

ii) Contracts

Seven contractors were invited to bid and all submitted prices. The spread of prices was [redacted]. 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 9.8%, which is within NGG's stated acceptable tolerance. 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 Feasibility Study had identified that both Ecological and Archaeological considerations posed high risks and these 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 view this report did identify the true reasons for the variances on this project and we agree with the findings.

A7.4 CONCLUSION

Taking into account all the above we consider that the overall project was efficient.

APPENDIX 8 REPEX PROJECT REVIEW – LEEK ROAD, STOKE

A8.1 SUMMARY OF PROJECT

The construction of 4083m 315mm PE pipe and 31M of <180mmPE pipe as replacement for 4276.9m of DI pipe ranging in size from 2" to 20". The reason for replacement was `condition` of 14"-20" MP steel pipe which was suffering through-wall corrosion.

Service work included in the Project was 11 domestic and 7 non-domestic service transfers.

The Approved Project cost was £788,556.

A8.2 DOCUMENTATION PROVIDED FOR AUDIT

The following documentation was provided and reviewed for the completion of this audit:

Network Expenditure Approval Form T002 dated August 2003

Project Estimating Summary Sheet for Contractors and Materials

Correspondence with Stoke CC over highway and traffic impacts. Internal correspondence regarding co-ordination of works with STWA (which did not prove possible).

Plans of the Project area indicating planned replacement and abandoned pipes.

Network Analysis diagrams.

Completion Report for Leek Rd & Victoria Rd Stoke-On-Trent Condition Replacement dated October 2004

A8.3 PLANNING AND NETWORK DESIGN

With the exception of 800M, the main was designed to be replaced by insertion, minimising costs, and minimising Traffic disruption. Network runs were used to determine the acceptability of section `outages` during the insertion process. Restrictions were placed on the insertion of one section when December-February working was to be avoided.

A8.4 PROJECT COMPLETION

Details have been made available of the Completion Report, which identified a number of irregularities.

An incorrect Contractors payment was identified which resulted in a repayment to NG of £34k.

The Project was 38% overspent at £1,085k.

No estimate had been included in the Project Approval for Connections > 12" diameter, the actual cost of which, was £245k.

A crossing over a disused railway line was not foreseen, an additional cost of £50k.

The Completion Report contains `learning points` which indicate that action points were progressed relating to some of the shortcomings identified.

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 project was authorised under the delegated authority of the Network Director.

The failure to include the > 12" connection costs was a disturbing omission from the original PA. It could reveal a `mechanistic` approach to estimating, by persons not understanding the full scope of works for which they provide a key element. The `unforeseen` rail crossing, also perhaps reveals a less than full comprehension of the environment within which the project was designed.

For the Project to become 38% overspent, with no resubmission of the Project Application until completion indicates a lack of financial and management control.

None of the `lessons learned` from the Completion Report, relate to the Contractors `overclaim`, which was revealed by the standard `Job Closure` process. It is not known if any changes were made to the Contractors work approval process as a result of this event.

APPENDIX 9 HSE TARGETS – NGG (WM)

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 – **Not acceptable**

The mains replacement programme should remove a number of the potential leakage sources, and thus reduce the number of PREs.

Response - The number of PREs is shown to be decreasing during the forecast period, but by only 1.7%, or 0.24% per annum between 2005/06 and 2012/3. This seems a very small reduction as a result of the considerable replacement activity.

The rationale and detail behind this forecast should be reviewed. The forecast level of PREs if over estimated, will have the effect of maintaining planned OPEX at an unwarranted high level.

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.

Comment - Leakage is indicated as reducing over the forecast period, which reflects the impact of the replacement programme. The leakage reduction is greater than may have been expected from the forecast reduction in the levels of PREs. This is an indication of inconsistencies between the returns given to C18.3, C18.4 & C18.6.

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.