

Review of Ofgem Gas Distribution Price Control Review - Five Year Control (Capex/Repex) - Final Report

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Produced for
Wales & West Utilities

Prepared by
D F Richmond-Coggan
Project Director

West Hall
Parvis Road
West Byfleet
Surrey
KT14 6EZ
UK

T 01932 337053
F 01932 336140
E david.richmond-coggan@mouchelparkman.com
M 07836 686335

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1 Terms of Reference

This Report is presented to Wales & West Utilities in respect of the Five Year Price Control Review and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this Report. Wales & West Utilities may pass this Report unaltered to Ofgem for the sole purpose of supporting Wales & West Utilities' response to Ofgem in relation to the Price Control Review.

Mouchel Parkman acknowledges that as a result of such use by Wales & West Utilities, this Report may be placed in the public domain.

This Report was commissioned by Wales & West Utilities and the scope was confirmed in Mouchel Parkman letter to Wales & West Utilities dated 5 March 2007. The scope was to review the capex adjustments made by PB/Rune from the perspectives of:

- technical analysis of the projects involved; and*
- evaluation of the review methodology, the statistical techniques applied, the economic parameters applied and the treatment of inflation.*

This Report should be read with the reports prepared for Wales & West Utilities by Chandler KBS, Advantica and Andrew Collins Consulting Limited.

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This Report has been prepared using data and information received from Wales & West Utilities, where this data and information has been validated this is stated in the text of the Report. Mouchel Parkman has undertaken a number of site visits to base its review on the technical realities and practical issues of the proposed workload of Wales & West Utilities. The Report also uses information in the public domain and some information from internal Mouchel Parkman sources which are confidential to Mouchel Parkman.

2 Executive Summary

In the very limited time available within the timelines set by Ofgem for responding to the draft response to Wales & West Utilities' submission to Ofgem, Mouchel Parkman has independently reviewed the capex elements in the response by PB Power/Rune Associates on behalf of Ofgem. Mouchel Parkman's (MP) review provides a fact based analysis of the projects, workload and cost issues.

This analysis identifies significant flaws in the theoretical analysis upon which PB Power/Rune Associates states its review is based. The principal flaws are summarised as:

- **LTS and Storage Capex**

- **Pipelines**

The W&WU submission for LTS pipeline costs is supported by independent conceptual design studies which address the actual construction costs of the pipelines. These costs are therefore significantly more robust than the theoretical assessment based on a general national benchmark whose content and limitations are not stated. MP has undertaken a high level review one of the independent reports and found the routing appropriate and the cost estimates properly incorporated by W&WU.

The MP view is therefore that the £27.1m negative adjustment against pipelines applied by PB/Rune is unjustified and should be reinstated.

- **Storage**

PB/Rune's reference cost for inline storage is based on 1200mm pipeline. Their figure for storage in 600-900mm pipeline, accounting for 50% of total W&WU storage, is £200m/mcm.

The MP view is therefore that no capacity adjustment should be made.

- **Pre-Heater Replacement**

MP has carried out physical inspections of a sample of water bath heaters defined within the W&WU replacement programme. The inspection process has confirmed the validity of the Advantica Report and justifies the proposed replacement programme.

MP however recommends that the W&WU 3 year programme is extended to cover the full five years of the Price Control Period as the three year programme proposed is considered to be overly ambitious.

- **Connections Capex**

- The arbitrary reduction of 20% is unjustified since no account has been taken of the geographical differences to other GDNs with which comparison has been made.
- Regression analysis is not applicable since the categorisation of costs historically when Fulcrum undertook the work is no longer valid.
- In response to central government, Ofgem and local government drivers, W&WU is seeking to develop a pro-active policy to market infills and should be allowed the capex that will arise.

The MP view is therefore that there is no reason to make the 20% reduction from the W&WU LTS and Capex submission for the Price Control Period under negotiation.

- **Mains Reinforcement**

- No account is taken by PB/Rune of the significant cost pressures that efficiency savings from improved management and contracting arrangements have to counter and no justification is provided for making the year on year reduction.

The MP view is therefore that there is no reason to make this reduction from the W&WU LTS and Capex submission for the Price Control Period under negotiation.

- **District Governors**

- The requirement is not questioned by PB/Rune. From the work completed by MP we believe that W&WU has never received the funding for this workload and that the previous network owners programmed this work to be undertaken during the period between 1994 - 2010. No evidence has been seen that suggests that this work was undertaken or even started by the previous owner.

The MP view is therefore that there is no reason to exclude these costs from the W&WU LTS and Capex submission for the Price Control Period under negotiation.

- **DSEAR**

- MP has carried out inspections at a sample of relevant W&WU sites and, in line with the DSEAR requirements, has reviewed the associated W&WU cost estimates. In reviewing these cost estimates MP has found individual discrepancies across the work elements that make up the total project costs but in aggregation these discrepancies are insignificant.

The MP view is therefore that as a legislative requirement, full funding should be allowed during the Price Control Period under negotiation.

3 Introduction

3.1 Background

Wales & West Utilities (W&WU) has made its submission to Ofgem in relation to its Capex allowances for the Wales & West network for the period 2008/09 to 2012/13. This submission has been reviewed by PB Power/Rune Associates (PB/Rune) on behalf of Ofgem. The draft report by PB/Rune reviewing the submission has been made available to for comment.

W&WU considers that the review by PB/Rune is seriously flawed in its reporting of the facts of the W&WU submission and its analysis. PB/Rune has proposed that the net capex (at 2005/06) prices should be significantly reduced from the figures put forward by W&WU in its BPQ submission; from a total capex for the period of £306.9m to £203.4m. PB/Rune has proposed a similar reduction in Repex from £430.8m to £376.2m.

W&WU has commissioned Mouchel Parkman (MP) to assist in developing its response to Ofgem.

3.2 Response Process

Ofgem invited responses by 13 March. W&WU have made an initial response and have stated they will be making further responses.

W&WU proposes to make a further response; this report is intended to support this further response. It focuses on the most significant areas of the PB/Rune review and analysis where MP has identified flaws. W&WU reserves its position for this to be followed by a further, more detailed response.

3.3 Principal Flaws

The principal areas where MP's initial evaluation has identified flaws in the PB/Rune review are identified below and discussed in detail in the following sections of this report.

For the avoidance of doubt, the lack of comment in this initial response on any items in the PB/Rune review does not signify their acceptance by W&WU or MP. Work is continuing to identify issues and to generate more detailed responses to the issues raised.

- (i) the Capex adjustments for LTS and Storage Capital Expenditure;
- (ii) the Capex adjustments for Connections;
- (iii) the Capex adjustments for Mains Reinforcement and Governors;
- (iv) the Capex adjustments for Other Operational;
- (v) the Capex adjustments for Non Operational;

- (vi) the normalisation adjustments and adjustments to Repex - these are not addressed in this report;
- and in the generic analysis:
- (vii) the analysis of the impact of inflation on contractors' costs, labour costs and material costs;
 - (viii) the analysis of the impact of regional and other factors on contractors' costs and material costs;
 - (ix) the selection of base data for the regression analysis;
 - (x) the interpretation of the regression analysis that has been undertaken;
 - (xi) inconsistent application of methodologies between different categories of the costs

In addition, W&WU has already identified errors in the report. In response, further detail in the form of ten spreadsheets and a further explanation of the methodology applied have been provided by Ofgem but these spreadsheets in **Error! Reference source not found.** have had all calculations stripped out so that it is impossible to interrogate PB/Run's analysis.

4 Detailed Analysis

4.1 Capex Adjustments for LTS and Storage Capital Expenditure

4.1.1 W&WU BPQ Proposals

Work area	Proposed 2008/9 – 2012/3 expenditure (£m)
Pipelines	76.5
NTS Offtakes	5.9
PRs	27.2
Other Storage	1.4
Total	111.0

It is apparent from discussion with Senior Managers from the Network that W&WU have not included any Real Price Effect's (RPEs) in their cost projections for any LTS pipeline projects contained within the BPQ - unlike other Capex work areas, RPEs have not been applied to this area of the W&WU estimates.

It is also apparent that all cost estimates given in their BPQ submission are at 2006 prices.

W&WU should correct these in its next submission to Ofgem.

4.1.2 PB/Rune Adjustments

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
Pipelines	-27.1	Reduced cost per kilometre applied, based on an analysis of costs for LTS pipelines of various sizes.
Capacity Adjustment	-10.0	PB/Rune estimate that a 'reference cost' of £100m/mcm of inline storage is achievable. This cost is based on a notional cost of NTS linepack (should it be available) of £50m/mcm, doubled to take account of the effect of transmission capacity in the LTS. Storage costs exceeding £100m/mcm are viewed as inefficient and have been cut out.
Pre-heater Programme	-3.1	One third of the pre-heater programme has been deferred out of the current price review period. PB/Rune state that the programme is not supported by data to justify the W&WU-proposed three-year programme.
Sum of other minor adjustments	-2.6	
Total (totals subject to rounding errors)	-42.8	

4.1.3 *Independent Analysis of Adjustments*

4.1.3.1 Pipelines

Capital Costs - In the specific area of LTS pipelines PB/Rune have, in their report, concluded that the application of unit costs are appropriate to LTS pipelines which they believe adequately reflect the average lengths and conditions of construction. By definition the use of standard costs/kilometre takes no account of local factors such as real project costs associated with the planning and construction of individual cross country pipelines.

Whilst the methodology adopted by PB/Rune may have been applicable when looking at pipeline construction projects across a national scale MP does not believe that this approach is applicable to an individual distribution network where we believe there is, in the case of W&WU potentially significant variations from a notional 'national' average.

Significantly it is not clear what the proposed PB/Rune unit costs cover and clarification should be provided of whether, for example, the following cost elements are included:

- Land costs
- Direct labour costs
- Project management
- Design
- Services
- GDN overheads

Where an independent, pipeline feasibility and/or conceptual design studies have been undertaken for specific pipeline projects then the costs embedded within these studies will provide the baseline for assessing the appropriate project costs since they will demonstrably include for the project specific costs and variations from any national norm including, for example, exceptional river crossings and significant changes in topography or other obstructions.

The standard unit cost approach used by PB/Rune is inconsistent with the approach of moving towards upper quartile cost used widely elsewhere in their analysis. This issue is explored more fully in section 2.9 below.

In their report PB/Rune analysed four major W&WU pipeline projects, including the proposed Bancyfelin to Lampeter 20km 600mm diameter pipeline. The W&WU-estimated cost (excluding real price effects) is £23.3m. The PBE-estimated cost (excluding real price effects) is £16.0m.

The Bancyfelin to Lampeter pipeline project has been analysed as a sample considering:

- A review of the Pipeline Feasibility Study for Bancyfelin to Lampeter pipeline prepared by Multitech Contracts Ltd ref no 2744-001 on behalf of W&WU and
- A physical review of the Bancyfelin to Lampeter pipeline route proposed by Multitech utilising viewing points from the highway or other access areas open to the general public.

The analysis demonstrates that:

1. The pipeline route proposed by Multitech in their report is appropriate for the pipeline proposed and
2. That the project costs, estimated at £ 26.2m is the midpoint expected for this specific project along the route identified within the report.

A comparison of the PB/Rune and Multitech estimates shows

LTS Pipeline Project	PB/Rune Estimate	Multitech Feasibility Study	
		Cost Estimates	Date of Report
Bancyfelin to Lampeter (20.6km 600mm)	£16.0m	£26.2m	24/11/06
Corston Field to Hinton Charterhouse (12.3 km 450mm)	£8.6m	£9.9m	18/07/06
Kingston St Mary to Crowcombe (11km 450mm)	£7.7m	£9.1m	10/07/06
Frampton Cotterell to Coldharbour Lane (7km 900mm)	£7.0m	No Report received	

Importantly, as part of the Bancyfelin to Lampeter pipeline project review, MP contacted the consultant responsible for the production of the Feasibility Study (MultiTech) and from those discussions the consultants confirmed that:

- The Pipeline cost estimated contained within their report were (£26.2m) were at November 2006 prices and
- That the costings were made on the basis of actual costs i.e. Regional Price Effects were included within the costing process.

Pipeline Storage - From Figure A5-1 in Appendix 5 of the PB/Rune report, it is clear that the estimated reference cost of £50m/mcm is applicable to a 1200mm pipeline. For W&WU, a size range of 600-900mm would be more appropriate as demonstrated in the table below and Figure 5-1 gives a reference cost of

£100m/mcm for this size range. Application of the PB/Rune proposed factor of x2 to allow for transmission capacity in the LTS would result in a reference cost of £200m/mcm for W&WU.

The average storage cost for the four major pipelines analysed in the PB/Rune report is £106m/mcm. As this is below the revised reference cost of £200m/mcm, it appears that no capacity adjustment should be made. If possible the average storage cost for all W&WU pipeline projects should be established for comparison with the revised reference cost.

W&WU Storage Proposals will deliver the following storage per project in the following diameter pipelines. This demonstrates that the range 600-900mm is more appropriate, since it delivers more than half the total storage and that a significant proportion of the storage will be delivered at 450mm dia. Only 13% of the total is delivered at 1200mm.

Projects	Km length	mm dia	mcm store	%
Corston Field to Hinton Charterhouse	12.3	450	0.124	
Kingston St Mary to Crowcombe	11	450	0.04	
Frampton Cotterell to Coldharbour Lane	7	450	0.04	
Bancyfelin to Lampeter	20	600	0.27	
Hinton Charterhouse to Trowbridge	9	450	0.030	
Minety to Swindon (Moredon Tee)	11	450	0.020	
St Georges to Weston Super Mare(A370)	5	1200	0.110	
Corston Field to Brislington Tee	6	450	0.060	
Indian Queens to Carland Cross	10	900	0.170	
Totals and proportion by diameter	56.3	450	0.314	36%
	20	600	0.270	31%
	10	900	0.170	20%
	5	1200	0.110	13%

4.1.3.2 Pre-heater Programme

W&WU has a report prepared by Advantica covering, at a high level, condition, high maintenance expenditure, and wasteful use of gas exist for the pre-heaters in the programme. This data was made available to PB/Rune, but appears to have been ignored or overlooked and should be highlighted again to Ofgem.

While these reports justify the programme itself, no consideration of the work and the procurement lead in time required appears to have been fully considered. In reviewing the scope and scale of the work envisaged MP believes that the three-year programme proposed by W&WU is overly ambitious and that a five year programme covering the full Price Control Period is more appropriate.

In undertaking our review MP has undertaken discussion with W&WU staff involved with the pre-heater replacement programme and undertaken a site inspection at a nominated installation to gain a deeper understanding of the W&WU proposals. MP's site visits and investigation confirm the following:

W&WU Categorisation of Sites / WBH by Risk

W&WU have identified sites where failures have occurred; this work indicates that there are instances where failure of the pre-heaters has resulted in a potential or actual failure to supply but the failure rate is low.

From the initial review undertaken by MP, the current risk criteria developed by W&WU for the replacement pre-heater project does not appear take into account the range of factors which may determine the actual prioritisation of the replacement programme .

A more sophisticated prioritisation scheme should be constructed to develop the detailed and overall proposals for the full replacement programme. The model will need to take into account all the engineering, financial and other factors which drive efficient capital expenditure including but not limited to consideration of the following:

- Poor pre-heater Reliability
- Restricted thermal capacity of the existing plant
- Low Thermal Efficiency of the pre-heater units
- Poor Condition and
- Periodic Inspection and Maintenance regimes.

The MP analysis above broadly supports the approach taken in the current W&WU justification for replacement of the WBH population in the formula period 2008/2013 that is based on their 4 main and interrelated arguments of :-

- Poor thermal efficiency.
- Environmental impact
- Security of supply
- Physical condition

4.1.4 *Independent Conclusions for LTS and Storage Capital Expenditure*

On the basis that the specific feasibility studies undertaken for the projects will give a more accurate estimate of the likely capital cost of the project than a theoretical comparison with dissimilar projects, the PB/Rune adjustment to pipelines should be withdrawn.

On the basis of PB/Rune's own calculations for the cost of storage, the capacity adjustment should be withdrawn because it has assumed an incorrect pipeline diameter for the pipelines proposed.

Specific investigation of the need for replacement of the water bath heaters has demonstrated that this expenditure is required. The work should be programmed over five years rather than the three years in the submission.

4.2 **Capex Adjustments for Connections**

4.2.1 *W&WU BPQ Proposals*

Work area	Proposed 2008/9 – 2012/3 expenditure (£m)
New Housing Connections	5.8
Existing Housing Connections	38.6
Non-Domestic Connections	2.3
Total	46.7

4.2.2 *PB/Rune Adjustments*

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
Cost per Connection		W&WU is under-performing against the benchmark cost established by regression analysis from all GDN data. In calculating allowable costs, it has been assumed that W&WU will make efficiencies to reduce the gap with the benchmark cost to 30% by 2012/3.
Length of new main per new connection		The average length of new main required to provide a new connection in W&WU (3.95m) exceeds the national average (3.03m) by 30%. Accordingly PB/Rune has applied a workload reduction of 20% to the length of new mains.
Total (totals subject to rounding errors)	-£15.8m	

4.2.3 *Independent Analysis of Adjustments*

4.2.3.1 Cost per Connection

Labour Costs

The projected rise in labour costs is summarised in Chandler KBS report based on labour indices and regional trends. The general consensus within the gas industry is the biggest threat to the increase in labour cost will be from the water companies pipe replacement programme brought about by the Ofwat water leakage review - see also independent DfES evidence referenced in 4.6.3. This has significantly impacted on labour costs due to the close similarities in the work types:

- There is a current national shortage of trained gas operatives this can only be exasperated due to the close similarities in work type. One off gas connections type work has not been seen as lucrative due to the lack of productivity caused by travel between jobs and abortive visits. Since a large number of contractor operatives are self employed earnings are higher when the works are centred in one location typically associated with replacement type works.
- Contractors viewing water replacement contracts as being more lucrative than gas connections work. The recent alliance contracts set up by National Grid which will probably be adopted by water companies are high value and long term e.g. the Morgen Est. contract set up in the West Midlands is valued at £340 million pounds.

Workload

The PB/Rune Report, section 4.4.2.2. (Section 14.1 of the W&WU response) cuts the mains length per connection by 20% based on the national average. This reduction is based on an arbitrary and gross over simplification that takes no account of the workload differences between the W&WU area and the national average. It has always been acknowledged in the gas industry that large variances exist between rural and urban networks which have affected working practices and costs.

Regression Analyses and Efficiency Frontier

The point is made in the W&WU response on the different way that Networks allocate overheads. While cost data has been made available by W&WU for the year 2006/07 (the base year used by PB/Rune) it should be noted that other networks were still using Fulcrum Connect. The point made by W&WU regarding the allocation of overheads is further highlighted by the charging mechanism used by Fulcrum Connect. The Fulcrum Connect Invoice to a network consists of contractor charges for undertaking specific jobs and an overall management fee made up of Fulcrum and the Contractors non-operational overhead plus profit. The management fee was agreed at the beginning of the year and paid in twelve monthly equal amounts regardless of workload. What should be noted is that Fulcrum not only

undertake connections *Capex* works but service alteration works *Opex* and in situation where service alterations result in renewal *Repex* (typically between 40% to 60% of service alteration jobs result in renewal). This obviously extends the scope for networks to not only allocate the management fee over the three *Capex* activities but also to *Opex* and *Repex* accounts.

4.2.3.2 Infills Policy

W&WU considers that there are important drivers to increase connections infills activity. Ofgem and Local Government have drivers to meet fuel poverty which will drive change. Affordable Warmth suggested that there were 50,000 households within 2km of existing gas mains that do not benefit from a gas supply.

To investigate this market, W&WU has commenced marketing to potential customers. In January 2007 it started mail shots to existing housing with mains outside the property and also trialed a small number of areas with a direct doorstep approach for comparison of effectiveness. If it had not included the workload in its projections it could be penalised for not forecasting it.

4.2.4 *Independent Conclusions for Connections*

Neither of the adjustments made by PB/Rune have any basis in analysis of the actual workload required within W&WU and are based on flawed assumptions regarding the comparisons with the national average position.

Both adjustments should be withdrawn.

4.3 **Capex Adjustments for Mains Reinforcement and Governors Including normalisation.**

4.3.1 *W&WU BPQ Proposals*

Work area	Proposed 2008/9 – 2012/3 expenditure (£m)
Reinforcement Mains	34.5
District Governors	9.0
Service Governors	0.4
Total	43.9

4.3.2 *PB/Rune Adjustments*

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
Mains Reinforcement	-1.5	Assumed that 2% year-on-year savings can be made through optimised management of ops and review of period contract arrangements.
District Governors	-5.9	Moved to Other Operational Capex as a normalisation adjustment.
	-6.3	Replacement disallowed on the basis that the work should have been completed by the

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
		previous network owner prior to 1994. Note that W&WU's forecast for this activity is £4.3m not £6.3m. The reasons for this discrepancy are not clear. The PB/Rune report refers to a justification in Section 5.3.1.2, which does not exist.
Total (totals subject to rounding errors)	-£15.8m	

4.3.3 *Independent Analysis of Adjustments*

4.3.3.1 Mains Reinforcement

2% year-on-year efficiency savings are assumed, realised through optimised management of operations and the review of period contract arrangements.

W&WU is making efficiency savings but given the pressures on labour and contractor costs (as referenced in 4.6.4) significant efficiency savings will be required to counter the cost inflation arising from these pressures before delivering any year-on-year cost savings making the 2% target highly optimistic.

It should be noted that the percentage year-on-year improvement approach used here by PB/Rune is inconsistent with the approach of moving towards upper quartile cost used widely elsewhere in their analysis. This issue is explored more fully in section 0 below.

4.3.3.2 Governors

A 1994 policy review by the previous network owner in 1994 concluded that the replacement work should be carried out over the period 1994 – 2010. As a result W&WU has not historically received the Capex to carry out this work, which is still outstanding and necessary.

4.3.4 *Independent Conclusions for Mains Reinforcement and Governors*

W&WU has made demonstrable savings but these are required to counter cost pressures that are outside its control. An arbitrary adjustment is not justified.

The requirement for governor replacement is not questioned by PB/Rune. W&WU has never received the funding for this workload so there is no reason to exclude it. The previous owners programmed this work for 1994 - 2010.

4.4 Capex Adjustments for Other Operational Capex Including normalisation.

4.4.1 W&WU BPQ Proposals

Work area	Proposed 2008/9 – 2012/3 expenditure (£m)
Plant and Equipment	23.0
Land and Buildings	0.5
Total	23.5

4.4.2 PB/Rune Adjustments

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
Plant and Equipment	+5.9	Moved from Governors as a normalisation adjustment.
	-3.5	DSEAR disallowed pending further justification, as this work should have been completed by 2005 to meet legislative deadline.
	-15.6	Plant and Equipment programme has been drastically reduced on the basis that the W&WU bid for this area greatly exceeds bids from other GDNs. PB/Rune proposed that the expenditure should be prioritised and spread over a longer period. It is proposed that all GDN allowances are brought into line with the upper quartile performance in year three. The full allowance is proposed for year one and a closing of the gap to 50% of the best run rate for year two.
Total (totals subject to rounding errors)	-13.1	

4.4.3 Independent Analysis of Adjustments

4.4.3.1 DSEAR

The primary legislation applying to the control of substances that can cause fires and explosions is the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). These regulations put into effect requirements from two European Directives:

- Chemical Agents Directive (98/24/EC)
- Explosive Atmosphere Directive (99/92/EC)

DSEAR requires employers to assess the risk of fires and explosions that may be caused by dangerous substances. These risks must then be eliminated or reduced as far as is reasonable practicable. In carrying out these risk assessments and eliminating or reducing them the employer would use current national and industry

standards such as those produced by the Institute of Gas Engineers, British Standards or W&WU standards.

PB/Rune has stated that further consideration will be given to this expenditure once they have a full understanding. W&WU have carried out risk assessments on the majority of their sites and have priority scored each site.

During the review process MP visited three district governor sites and all contained a Glass Reinforced Polyester building of approximate dimensions length 4m x width 3m x height 2.2m. W&WU hazardous area assessment has classified these buildings as Zone 0.

Visual inspection of the sites visited by MP confirmed the following;

- No explosion relief fitted to the buildings
- Vent pipework terminated below 3m from finished ground level from each building
- Inadequate ventilation of the buildings
- The initial work indicates that Electrical equipment within the building is not suitable for use within the Zone 0 designation (if the ventilation was improved the building could be re-classified as Zone 1 and the installed equipment would then be suitable).

From the initial work undertaken it is believed that the installations do not currently comply with current industry standards and therefore capital expenditure is required to bring the installations up to current standard. From the information provided by W&WU it is noted that the majority of the expenditure (84%) is planned for 286 sites.

Again as part of the review process, MP has reviewed, on a limited sample basis, the projected W&WU indicative cost estimates for this work. As an example of the output of the review process MP prepared a bottom up cost estimate for the works at the W&WU installation at Bishopsmead. The resulting cost differences between the W&WU's and MP project costs estimates differed by only -1.6% which is well within any acceptable cost estimating tolerance.

During the site visits equipment was identified as being obsolete but the costs of this replacement programme has been excluded from the project cost estimates as these costs are not directly related to the DSEAR requirements.

4.4.3.2 Plant and Equipment

The PB/Rune approach takes no account of the starting position of different GDNs at the time of sale in terms of plant and equipment condition. W&WU can provide condition data which supports the development of the P&E capex proposals. This justifies both a period of time and corresponding expenditure to catch up.

The fact that, as stated in the report, some GDNs have not requested any expenditure in this category may indicate that plant and equipment needs have been spread over other work categories. It does not in itself invalidate W&WU's proposals.

4.4.4 *Independent Conclusions for Other Operational Capex*

The DSEAR legislative deadline is not 2005 (this was the deadline for planning) and the costs proposed by W&WU have been validated through a site sampling process. This adjustment should be withdrawn.

The arbitrary "drastic reduction" has no basis in analysis of the elements included in this category by W&WU with the other GDNs which are claimed to have submitted lower bids. W&WU will provide data to justify its submission by reference to plant and equipment condition. This adjustment should be withdrawn.

4.5 **Capex Adjustments for Non Operational Capex**

4.5.1 *W&WU BPQ Proposals*

Work area	Proposed 2008/9 – 2012/3 expenditure (£m)
System Operations	18.3
IS Infrastructure	4.7
IS Systems	24.3
xoserve Capex	5.5
Vehicles	16.3
Telecoms, Office	0.5
Security	0.3
Furniture and Fittings	0.3
Tools and Equipment	5.7
Total	75.9

4.5.2 *PB/Rune Adjustments*

Item	Adjustments to 2008/9 – 2012/3 expenditure (£m)	Reasons Given for Adjustment
System Operations	-18.0	SOMSA replacement disallowed. The corresponding costs are stated to have been specifically excluded at the time of network sale. The PB/Rune proposal is that that all GDNs (including non-private) should share with NGG the development of DNCS for GDN system management purposes.
Total (totals subject to rounding errors)	-18.0	

4.5.3 *Independent Analysis of Adjustments*

4.5.3.1 SOMSA

The PB/Rune proposal may be feasible but it is not possible to confirm this without a feasibility study to check the practicality of the proposal and the costs to the parties. Even if these can be confirmed, progress is crucially dependent on the willing co-operation of all of the parties and the allowing of equitable funding for all concerned by the regulator. In such large, complex collaborative projects there is significant potential for delay and cost over-run. It is not known whether the proposed DNCS development could be up and working by the current proposed dates for GDN withdrawal.

W&WU has produced demonstration and confirmed that the money allocated within the submission for SOMSA included for change out of telemetry equipment. W&WU should redefine its cost categorisation and resubmit its figures to Ofgem such that PB/Rune should correct its incorrect interpretation of the work content and expenditure of the items in the SOMSA section of the current submission.

4.5.4 *Independent Conclusions for Non Operational Capex*

W&WU has demonstrated that PB/Rune had not recognised the costs for change out of telemetry including in its submission. This adjustment should be withdrawn.

4.6 **Analysis of the Impact of Inflation on Contractors' Costs, Labour Costs and Material Costs - this section should be read with the Chandler KBS Report.**

4.6.1 *Assumptions for RPI*

The treatment of RPI as a base to the future impact of inflation is inconsistent within the PB/Rune analysis. Although the analysis acknowledges that RPI has been above 2.5% and there is no discussion on future estimation, a simple statement is made that 2.5% has been assumed. Since the official targeting has moved to the Consumer Prices Index (CPI) it is clear that RPI is not being held down to 2.5%. Applying a RPE on an inaccurate figure for RPI will lead to an underestimation of the overall impact of inflation

4.6.2 *Contractors' Prices*

The Chandler KBS Report fully addresses this point.

4.6.3 *Direct Labour Costs*

In addition to the clear analysis in the Chandler KBS Report, the rate of inflation for labour as identified in the AEI is assessed but then reduced to a real affect by deducting a higher figure for RPI than that assumed for the future. This delivers an underestimate of the future increase in labour costs. Rounding of the estimate by PB/Rune reduces its own estimate of the rate of increase by 10%.

4.6.4 *Wider Factors affecting Labour Costs*

In July 2002 the Department for Education and skills sponsored the Skills Dialogues: Listening to Employers. A report was published: An Assessment of Skill Needs in the Gas, Water and Electricity Industries, The Key Messages (Executive Summary) section is included at Annex A, this is still valid and confirms the pressures that will drive up costs of the skilled labour required for gas infrastructure project in the medium term.

4.6.5 *Material Costs*

Investigation of the current and historic costs for 300mm, 450mm, 600mm and 900mm equipment, fittings and pipe used in the construction of a pipeline from year 2001 to current day from a number of manufacturers and suppliers were contacted and costs obtained. Although there is significant variability on the rates of price increases in the data obtained, there is demonstration of a steady rise in costs throughout the period covered. This cost can be directly contributed to the very steep increase rise in steel and energy costs.

In addition, W&WU must overcome the monopoly supplier position created in the market by the recent single sourcing policy of National Grid which makes the generation of real competition in supply very difficult to achieve.

It is very clear that no account of these factors has been taken in future cost increase assumptions in the PB/Rune report.

4.7 **Analysis of the Impact of regional and other factors on Contractors' Costs and Material Costs**

The Chandler KBS Report fully addresses this point.

The treatment of the impact of Landfill Tax is unreasonable, particularly in view of the further increases announced in the Budget. While it is recognised that government policy in imposing the Landfill Tax was designed to reduce landfill, it is unreasonable to expect that W&WU will be able to mitigate the steep increase in costs to extent that there will be no increase in expenditure.

4.8 **Selection of Base Data for the Regression Analysis**

PB/Rune has selected the base data for the regression analysis to be different for different categories of cost - this is contrary to general best practice. Without access to PB/Rune's analysis, it is not clear what the impact is on the calculations.

The dates used are:

Cost Category	PB/Rune reference	Date used
Connections	4.3.4.3	2006/07
Mains & Governors	5.3.4.2	2005/06

Mains & Services Repex	8.3.4	2006/07
• assumptions and adjustments		2005/06
• waste disposal	8.4.4	not stated

4.9 Inconsistent Application of Methodologies between Categories of Costs

Three different methodologies are used in the PB/Rune report to assess the allowable cost for an activity. These are:

- Comparison of GDN costs with upper quartile cost (used for most items)
- Actual average cost data for projects (used for pipeline costs)
- Assumptions regarding future efficiency savings and productivity improvements and the level of inflation likely in work components (used for mains reinforcements and elsewhere)

Comparison with upper quartile costs:

The methodology for calculating allowable unit costs is set out in Section 2.5 of the draft report. In summary costs are first 'normalised' by removing one-off items and bringing costs for different GDNs to the same accounting basis. Costs are then adjusted to take account of regional factors. Regression analysis is carried out on the adjusted cost information from all GDNs to determine the 'Frontier' cost (cheapest) and upper quartile cost (cost which is undershot by 25% of GDNs) for each work area. Where data or workload is considered to be too irregular for satisfactory regression analysis judgement is substituted for the regression analysis.

The upper quartile cost is set as the 'Benchmark Performance' and each company is expected to move towards that cost by making productivity improvements within the five-year period. This gives an allowable unit cost for the work area for each year of the period. Workloads assessed by the GDN may be adjusted. Allowable unit costs are then applied to workloads to give annual costs. These are adjusted to take account of regional factors and real price effects, including inflation for different work types.

Annex A Utilities Skills Dialogue

Utilities (Gas, Water and Electricity) - Skills Dialogue

General

- The Utilities dialogue incorporates the onshore UK gas industry from the transportation of gas to the installation of gas in the home; the water industry covering the management of water resources, supply, treatment and distribution together with the treatment and disposal of sewage and industrial effluent; the electricity industry including the generation of electricity and the installation and repair of electrical networks and instrumentation; and also telecom cable-laying.
- As a consequence of privatisation, together with other common drivers of change, there is shared ground across the Utilities in the area of *Network Construction* (the process of laying pipes and cables, servicing the networks and maintaining strictly regulated levels of health and safety) – this work is typically contracted out to 3rd party companies who work across the Utilities.

Industry drivers

Increased competitiveness, globalisation and technological innovation are key, as with all industrial sectors. Regulatory requirements are also creating cycles of skills needs and specific demand requirements for labour.

- In the **water industry**, the role of the regulator in price setting and arbitrating infrastructure investment dominates the industry. Regulatory demands have led to a cycle of bidding and contracting that fosters short-termism. Lack of long-term resource planning inhibits skills investment and planning, which will have a negative impact on the sustainability and competitiveness.
- EU rulings on drinking water quality and waste water mean additional demand pressures for the industry – by 2007, more than 3,500 km of new piping will need to be laid.
- OFGEM and the **gas industry** are now operating to a 30-year programme of investment and the industry is now able to plan for skills needs over the long term.
- The metallic mains replacement programme – driven by health and safety concerns – is pushing up the demand for contract workers in the gas industry, while the government's scheme to put gas central heating in all homes is contributing to an urgent need for gas installers.
- In the **electricity industry**, the UK commitment to the terms of the Kyoto protocol may lead to a decrease in electricity generation and a rise in nuclear generation to meet the emissions targets. If so, restructuring in the industry will have implications for skills needs
- The regulator across the Utilities has kept prices in check and competitive edge has had to come through cost cutting and greater operational efficiencies – with a negative impact on training investment.
- The trend towards multi-utility companies operating across water, gas and electricity, creating some synergy of skills needs.

- Utilities are diversifying into other activities such as retailing and financial services to build market share. There is a significant amount of takeover and merger and acquisition activity and consolidation in the industries is expected to continue.

Demand for Skills

The nature of the Utilities industry means estimates of the size of the sector varies substantially. Official figures state 140,000, while other estimates quote over 500,000. For instance, the growth of outsourcing and contract workers means that official numbers underestimate employment in the Utilities supply chain.

Despite divergence in employment numbers, the overall trend is downwards as the Utilities continue to rationalise, restructure and up-skill their remaining workforce.

However, the rate of decline is moderating as employment levels in the industries bottom out. Official statistics show the decline in employment will continue, albeit at a slower rate. A fall to a level of 108,000 employees by 2010 is forecast.

Replacement and occupational-specific demand

- The age profile of workers throughout the Utilities, and also the contracting industry, is a major cause for concern and they face difficulty in attracting adequately skilled applicants.
- Replacement demand is the key feature across the occupations – I.E. demand for new to take over from older workers retiring or people leaving the industry.
- Most urgent is the replacement demand for administrative workers and skilled craft workers across the Utilities. In the case of administration, skills are not sector-specific and the Utilities will be competing with other industrial sectors.
- The **electricity generation industry** faces difficulties finding replacements for engineering, technical and craft roles. Problems are even more acute for highly specialised engineering and scientific jobs (although the numbers are small).
- The demand for network operatives and **gas** installers is in large part due to the exit of older workers from the job (as well as the demands of new programmes of capital investment).
- Concerns about succession planning within the Utilities as older senior managers leave include:
 - replacing the few highly skilled process managers who keep the logistics of the **water** companies running smoothly, threatening the UK water industry's competitiveness.
 - as engineer managers retire from the **gas** transporting companies (with an age profile over 50). As business graduates are recruited into management roles in the sector, vital industry knowledge will be lost at senior levels.

Skill needs

Across all occupations, there is a demand for the following:

- multiskilling (across utilities and across installation and maintenance)
- upskilling (driven by technical advances and more stringent regulation)
- customer service and business awareness skills (driven by growing customer expectations and competition)
- as Utilities companies change their business models new types of skills such as asset management, supply chain management, and contractor management
- technicians (i.e. the team leader role) to manage teams of crafts workers, driven by the cutbacks of managerial employees.

Supply of Skills

- In the gas, water and electricity sectors, as well as the replacement demand difficulties cited, they find it hard to attract graduate and apprentice applicants. The **Electricity** Training Authority (ETA) is currently addressing this problem through better marketing of careers in the sector.
- The **gas and water** industries are targeting alternative labour pools - the unemployed, lone parents, women and ethnic minorities, through New Deal - to widen the pool of potential labour as the supply of young people dries up.
- Utilities need to overcome its poor image to attract people to the industry, and improve perceptions of insecure employment and unclear career paths.
- Graduates are deterred by the industries' image and a commonly held view that pay is low.

Skill shortages – i.e. where there is a lack of adequately skilled and/or qualified individuals available in the labour market, were noted as follows:

- In the **water** industry, anecdotal evidence suggests a shortage of engineers where others industries in the vicinity, e.g. petrochemicals, use similar engineering skills to the Utilities and offer higher wages.
- Shortages of call centre staff in the South and South East have been noted by the **electricity** industry.
- Many workers with electrical training concentrate on instrumentation and move into the more lucrative IT sector, contributing to shortages of electricians and approved electricians.
- Anecdotal evidence suggests that the Scottish **water** industry faces difficulties attracting staff to work in more remote areas. London and the South East and, to a lesser extent, other regions, face a tough challenge to attract sufficient numbers into **gas installation** to meet the needs of the Affordable Warmth scheme, and for contractors to meet the demands of the metallic mains replacement programme.
- Shortages of contracting staff.

Skill gaps – i.e. where workers in the industry do not have the right level of skills to meet the demands of their job, are a particular issue in the following areas:

- supervisory level, where individuals are required to have technical abilities but have inadequate communication, customer care and people management skills
- when health and safety regulation is constantly being overhauled and when new legislation comes into play, there is often a temporary skills gap
- business and financial understanding together with sales and marketing awareness is needed across all occupations in the Utilities
- stakeholders in the industries point to skills gaps within the contracting businesses supplying the Utilities.