



Appendix D

CAPEX SPECIAL FACTORS

**WICS REPORTER SERVICES
STRATEGIC REVIEW OF CHARGES 2006
Second Draft Business Plan**

**REPORTER'S REPORT
Appendix D**

CAPEX SPECIAL FACTORS REPORT

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RECORD OF ISSUE

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1					
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3	20/06/05	Incorporated as Appendix D of Reporter's Report	DA	JBM	DA

D1. INTRODUCTION

This report on Capex Special Factors forms Appendix 4 of the Reporter's report to the Water Industry Commissioner for Scotland (WICS) on Scottish Water Second Draft Business Plan for the Strategic Review of Charges 2006-10 which was submitted to WICS in April 2005.

In its second draft business plan Scottish Water identifies two capital maintenance special factors which it believes should be taken into account when benchmarking Scottish Water against other water companies. These are:

1. Water resources and treatment: £17.39M
2. Service reservoirs: £0.99M

Scottish Water describes its approach to these two special factors in its second special factors submission, submitted with its second draft business plan.

In our audits, we have focused on the assumptions and analysis which supports the assessment of cost. We have commented on the principles of the special factor claim where we have appropriate information. Our audit does not reach a conclusion on whether a particular special factor claim can be supported in principle.

D2. WATER RESOURCES AND TREATMENT

D2.1 General

Scottish Water describes the basis of this claim in its submission. We confirm that the description describes Scottish Water's approach correctly.

This special factor suggests that because Scottish Water has more and smaller assets than is usual in other water companies its capital maintenance costs will be higher than other companies and that this should be taken into account in any benchmarking of capital maintenance expenditure in the econometric models.

The special factor claim for resources and treatment is made up of three parts:

- Water resource infrastructure.
- Water resource non infrastructure.
- Water treatment.

Scottish Water has attempted to generate England and Wales costs that are then applied to its asset stock to imply the capital maintenance costs that an average England & Wales company would incur if it had to maintain Scottish Water's assets.

Our comments on the special factor claim is given below:

D2.2 Resources

Much of Scottish Water's information comes from the "Datashare" database. This is information shared by the water companies in England and Wales as well as Scottish Water. While much of the information comes from the annual returns, the information on asset inventory comes from the Capital Maintenance Econometric Return. We are not aware that this information is in the public domain. Where we have reviewed annual return information which is familiar to us we have found it to be correct.

Scottish Water was aware that dams were included in the infrastructure costs and so attempted to estimate the split of costs between dams and aqueducts by "trying" different splits and taking the one that gave the least variance to the data. This showed that the "dams" percentage was zero. While the method must be considered to be imprecise it is likely that maintenance costs for dams and impounding reservoirs will be small.

Given that Scottish Water has more aqueducts than other water companies it is possible that they might be of smaller diameter. If this is the case this would have a moderating influence on Scottish Water's costs relative to others. Scottish Water is of the view that diameter is only one moderating influence, others include depth, type of surface and access.

For non infrastructure costs Scottish Water did not have costs for England and Wales split into impounding reservoirs, river abstraction and boreholes. It therefore used the Excel "Solver" routine to estimate the possible cost rates per Mld for the three items by analysing the data in England and Wales and seeing which split explained the data best. The correlation coefficient for the answer was 0.49. This is not high and indicates the possible inaccuracy of the answer. We asked Scottish Water why they

had not compared the three items as a single item. Scottish Water informed us that this give a lower correlation of 0.3. Scottish Water also note that other econometric models used by the regulators have similarly low confidence levels (varying between 0.211 and 0.427. This is noted.

In overall conclusion we understand why Scottish Water believes that its capital maintenance costs for water resources may be higher than other companies. The fact that the information is not split into sufficient detail makes it difficult for Scottish Water to make a robust case for the likely level of additional capital maintenance expenditure that it incurs. However, Scottish Water notes that using England and Wales assets types, numbers and costs provides a much more robust estimate of the costs than the existing econometric model which is just based on the number of properties. Scottish Water further notes that the information available on England and Wales assets types, numbers and costs is possibly the most detailed that is, and will ever be, available.

D2.3 Treatment

This is the largest element of the claim.

Scottish Water believes that it is disadvantaged as it has many more small water treatment works than England and Wales. The data appears to bear this out.

Costs in England and Wales are not split by size band and so Scottish Water used the SARRAS generic model to generate a cost for each size band. It should be noted that in the SARRAS model the expenditure in each band is dependent on Scottish Water's asset age and condition profiles; if the band profiles changed so would the answer.

The costs for England & Wales were estimated by the costs for each band. The band rates were not enough to generate the total cost for England and Wales and so a factor of 2.24 was applied to obtain "England and Wales" costs. Scottish Water notes that It is emphasised that the 2.24 is a calculated factor and not an arbitrary figure. The figure is the ratio of actual England & Wales (E&W) costs at E&W efficiencies to the SARRAS calculated costs.

D2.4 Overall claim

Scottish Water added up the costs for WRI, WRNI and WT as an estimate of the costs that would be expended on its mix of assets if England and Wales companies were doing the work. Scottish Water then generated its cost using the econometric model and subtracted the answer. The difference forms the basis of the claim as Scottish Water believes that this is outside management control.

The distribution input costs in WRNI include for leakage in the output figure. Scottish Water believes that this is outside management control.

The model appears to be based on total properties but the definition is not particularly clear. Scottish Water has used the total of both domestic and non-domestic properties. If only domestic properties had been used Scottish Water's claim would be larger.

D2.5 Mitigating factors

We note that Scottish Water has included the whole area of Scotland in its mitigating factors. This may bias the result as most of the population of Scotland lives in the central belt, which is not dissimilar to England and Wales. Much of Scotland consists of mountains and, in effect has no population. A smaller area might be more representative of the actual situation. Whilst noting the point Scottish Water notes that a notional reduction in area served of as much as -40% for sources and -48% for WTWs would still show Scottish Water be compatible with E&W.

D2.6 Overall conclusion

Scottish Water has found it difficult to compare England and Wales capital maintenance costs to its asset stock as the comparable data does not give the granularity required. Scottish Water has therefore had to apply a number of methods to calculate unit costs. This makes it difficult for Scottish Water to make a robust case, even though it does appear to have a significantly different asset mix, particularly with its treatment works. Scottish Water notes that its relationship does provide a higher correlation than the econometric model.

D3. SERVICE RESERVOIRS

D3.1 Introduction

This claim is very much smaller than that for water resources and treatment. It has not been fully reviewed by ourselves but we have the following comments:

D3.2 Comments

Scottish Water bases its claim on the fact that it has more and smaller reservoirs than companies in England and Wales. We have not reviewed that data that Scottish Water has analysed to support this statement.

Scottish Water presents 3 sets of data to support its contention that surface area (excluding the floor area) explains the data the best. While the R^2 supports this it is noticeable that the difference between the R^2 for surface area and capacity is not great; this possibly explains why the final claim is quite small.

Because the surface area of reservoirs in England and Wales are not given, Scottish Water has calculated an implied surface area by assuming that all service reservoirs are 3.81m deep, based on an analysis of its own reservoirs. Scottish Water has then assumed that all service reservoirs are square. While this is often the case as it is the most efficient shape it is not universally true. We believe that Scottish Water has used sensible parameters in undertaking its analysis.

Scottish Water has then compared the surface area (excluding floors) of its reservoirs with the calculated area in England and Wales. Using the England and Wales relationship of volume to surface area it has then calculated a revised volume for its reservoirs and used this in the econometric model.

The accuracy of the output depends on the assumptions of service reservoir geometry made by Scottish Water. These appear to be reasonable.