

The Strategic Review of Charges 2006-10:
The final determination

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Members of the Water Industry Commission for Scotland

The Water Industry Commission was formed on 1 July 2005. The Office of the Water Industry Commissioner for Scotland was dissolved at that time.

The Commission comprises a non-executive Chairman and four other non-executive members. The Chief Executive is also a member of the Commission.

- **Sir Ian Byatt, Chairman of the Commission**, was Director General of the Office of Water Services between 1989 and 2000. In that role, he was responsible for the independent economic regulation of privatised water companies in England and Wales. From 1978 to 1989 he served in HM Treasury as Deputy Chief Economic Adviser. Since 2000 he has advised the World Bank and governments around the world on matters relating to the water industry. Sir Ian acted as an adviser to the former Water Industry Commissioner for Scotland since 2002.
- **Professor David Simpson, Deputy Chairman**, was Economic Adviser to Standard Life from 1988 to 2001. He was the founding Director of the Fraser of Allander Institute at the University of Strathclyde and is a Trustee of the David Hume Institute. Professor Simpson acted as an adviser to the former Water Industry Commissioner for Scotland since 2002.
- **Professor John Banyard** is a chartered engineer who recently retired as an Executive Director of Severn Trent Plc following a career in the water industry. His particular area of responsibility was the design and management of the capital programme and the day-to-day operation of the company's infrastructure. He also acted as an adviser to the Water Industry Commissioner for Scotland from January 2005.
- **Dr Michael Brooker** is a scientist who recently retired as Chief Executive of Welsh Water following a career in the water industry in Wales. During his career he was Chief Scientist and subsequently Divisional Operations Director of Welsh Water before becoming Managing Director in 1996.
- **Charles Coulthard** retired recently as Managing Director of Ofgem (the Gas and Electricity regulator) in Scotland. He served as Deputy Director of the Office for the Regulation of Electricity and Gas in Northern Ireland between 1992 and 1999. He is also currently the Chair of the Gas and Electricity Consumers Council in Scotland.
- **Alan Sutherland, Chief Executive of the Commission**, was the Water Industry Commissioner since the creation of the position in November 1999. During that time he developed a framework for economic regulation of Scottish Water.

Foreword

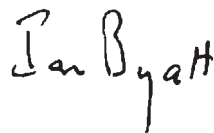
Water services in Scotland are regulated in a public sector model. Ministers set objectives, and provide limited finance to Scottish Water at government borrowing rates. In July, they appointed a Water Industry Commission to set charges for customers on the basis of the lowest reasonable overall cost of achieving these objectives. Quality regulators, the Drinking Water Quality Regulator (DWQR) and the Scottish Environment Protection Agency (SEPA) advise Ministers and monitor quality outcomes.

As our first major act, we, the Commission, have set limits to the prices that Scottish Water can charge customers for the next four years, from 2006 to 2010. These charge caps provide the financial framework that will enable Scottish Water to deliver all the ministerial objectives set for the industry in that period.

We began our work with the draft determination of charges issued by the Water Industry Commissioner on 30 June. We have studied the representations, including a detailed representation from Scottish Water, that we have received on this draft. We have also examined the latest available evidence before coming to our conclusions.

Following this determination, the Commission will, together with the quality regulators, the DWQR and SEPA, rigorously monitor the delivery by Scottish Water of ministerial objectives. We will also monitor the improvement of customer service in conjunction with the Water Customer Consultation Panels.

We are very grateful for all the help that we have received from our Office in coming to our decisions. We are also grateful to the quality regulators and to all those who made representations, including Scottish Water. We received many helpful points and have acted on them.



Sir Ian Byatt

Chairman, Water Industry Commission for Scotland
30 November 2005

Key messages from the Review

<p>Our approach</p>	<ul style="list-style-type: none"> • In setting charges, we have established our view of the lowest reasonable overall cost to deliver the ministerial objectives. • We believe that a determined management can deliver all of the ministerial objectives for the water industry within the financial framework set by these charge caps. • Outperformance of this financial framework could reduce customers' charges in future regulatory control periods.
<p>Impact on customers' bills</p>	<ul style="list-style-type: none"> • Most households will see their bills increase by less than the national rate of inflation in each year for the next four years. • Average household bills are likely to be the third lowest in the UK in 2009-10. • Most non-household bills will increase by 1.5% less than the rate of inflation in each of the next four years – a total reduction of over 6% in real terms. • In line with Ministers' principles of charging, we: <ul style="list-style-type: none"> - included a new 25% discount for recipients of Council Tax benefit; - allowed for the abolition of the discount on second homes; and - unwound £44 million of cross-subsidy from non-household to household customers. • On present information, charges in the 2010-14 regulatory control period could remain broadly stable in real terms.
<p>Benefits to customers and to Scotland</p>	<ul style="list-style-type: none"> • Our charge caps should allow Scottish Water to: <ul style="list-style-type: none"> - deliver all the 'essential' and 'desirable' ministerial objectives; - improve the level of service it provides to customers; - reduce leakage significantly, in due course reaching its economic level; and - release development constraints across Scotland, enabling provision of 15,000 more homes a year and commercial development that in total would cover an area the size of central Edinburgh.
<p>Scottish Water's responsibilities and opportunities</p>	<ul style="list-style-type: none"> • The total capital programme allowed for in these price limits for 2006-10 is £2.15 billion (in 2003-04 prices). • Scottish Water is tasked with delivering a large capital programme; the bigger companies south of the border have successfully delivered programmes of a similar size and with similar efficiencies. • The price limits allow for Scottish Water's operating costs to increase by 8.4% above the rate of inflation over the regulatory control period. • Scottish Water's charge limits are based on its much reduced declared customer base. It has an incentive to increase its revenue base. • If it performs in line with the final determination, Scottish Water will improve its financial strength.
<p>Management of the capital investment programme</p>	<ul style="list-style-type: none"> • We believe that Scottish Water should make significant progress in measuring the performance of its assets. • We have allowed for sufficient operating costs so that Scottish Water should not feel obliged to adopt expensive capital solutions in order to meet outcomes. • Our review of Scottish Water's proposed capital investment programme has identified evidence of very high unit costs and excessive scope. • We have growing concerns about the nature of the responsibilities that Scottish Water has delegated to Scottish Water Solutions. Scottish Water should consider how best to improve the efficiency of its capital expenditure.
<p>Governance and incentives</p>	<ul style="list-style-type: none"> • We welcome the Scottish Executive's representations on the Commissioner's draft determination. It plans to: <ul style="list-style-type: none"> - link managerial bonuses to outperformance of the regulatory contract (ie to improved value for money to customers); - allow Scottish Water to retain additional savings in a financial buffer that will protect customers from the full effects of any operational shocks; and - create a borrowing reserve to meet unexpected costs that are outside the control of management.
<p>Comparison with England and Wales</p>	<ul style="list-style-type: none"> • Charges in Scotland will increase by less than those in England and Wales between 2006 and 2010. • Scotland can afford a large investment programme with lower increases in charges because: <ul style="list-style-type: none"> - Scottish Water looks likely to have achieved its regulatory target on operating cost efficiencies in its first four years; - there remains further scope for Scottish Water to improve its efficiency; and - Scottish Water can borrow from government at lower than general market rates.

Executive summary of the final determination

Introduction

This final determination sets charge caps for Scottish Water for each year of the 2006-10 regulatory control period. In July 2005, the Water Industry Commission for Scotland replaced the former Commissioner. We have reviewed carefully the Commissioner's draft determination and the representations of stakeholders over the past several months. **We are now setting charge caps that, in our view, are sufficient (together with the borrowing allowed by the Scottish Executive) for Scottish Water to deliver both the 'essential' and 'desirable' ministerial objectives at the lowest reasonable overall cost. The charge caps we have set are also in line with the ministerial principles of charging.**

We have made a number of adjustments to the capital expenditure proposals included in Scottish Water's second draft business plan. **In our view this plan exaggerated both the scope and unit costs of projects required to deliver the ministerial objectives.** Notwithstanding these adjustments we have still allowed for a very large capital programme. Only the largest companies south of the border have delivered similar programmes in a timely and efficient way.

Additionally, we expect Scottish Water to improve its customer service and to make significant progress in tackling leakage.

Our charge caps mean that almost all customers¹ can look forward to a modest reduction in their bills in real terms. We consider that it is important to emphasise that we have not achieved this price stability at the expense of future customers. Scottish Water will end the regulatory control period in a strong financial position – if it meets the terms of its regulatory contract.

This final determination of charges represents the culmination of a two-year process. We have had input from many stakeholders, conducted two detailed consultations (on the proposed methodology and the determination itself), and arranged workshops and stakeholder information days. We have set out to operate a transparent process, in accordance with the Better Regulation Task Force Principles. We would like to thank all those who have contributed to the debate.

Printed copies of this determination are available from our Office. Electronic versions are also available on CD, and on our website at www.watercommission.co.uk. The financial and tariff basket models are also available on our website.

In this executive summary, we set out the charge caps we have determined and explain the main differences between the draft and final determinations. We then provide a short overview of how RPI-X incentive-based regulation has been applied to the public sector water industry in Scotland. We then consider in more detail our conclusions in the following areas:

- financial ratios and the allowed for rate of return;
- the revenue required from customers;
- the current and future number, mix and type of customers;
- the allowed for level of operating costs;
- the allowed for level of capital expenditure;
- the allowed for PPP costs; and
- additional operating costs relating to the new licensing framework.

We conclude with an indication of the prospects for future charges.

The charge caps

We adopted the same approach that the Commissioner used in the draft determination and have set our charge caps relative to RPI. This is also the approach that is used south of the border. In effect, the regulator caps the real increase in bills that customers will face. The difference between the charge cap and RPI is termed the 'K' factor.

We have set charge caps for both household and non-household customers. Our charge caps for non-household customers will limit the increases in tariffs that Scottish Water or its new retail subsidiary² can offer its non-household customers. We intend to make it a licence condition of the new retail subsidiary that it agrees to be bound by these charge caps. The non-household charge caps will also apply to Scottish Water in its role as the 'supplier of last resort'.

¹ Non-household customers who previously paid negotiated charges may and second home owners will see larger increases in their charges.

² The Water Services etc. (Scotland) Act 2005 establishes a framework for retail competition in water and sewerage services in Scotland. This will require the non-household retail activities to be separated from the core wholesale business.

We have applied charge caps to each of the tariff baskets for each year of this regulatory control period. The tariff baskets group together all of the tariffs that apply to a particular service. (For example, the household water basket includes the tariffs for unmeasured water, the standing charge for a water meter and the volumetric rates that could apply to households.)

The K factors for each tariff basket, against which we will monitor Scottish Water, are shown in Tables 1 and 2.

Table 1: The K factor for each retail household tariff basket

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-0.5%	-0.5%
Household unmeasured waste water	-0.5%	-0.5%	-0.5%	-0.5%

Table 2: The K factor for each retail non-household tariff basket

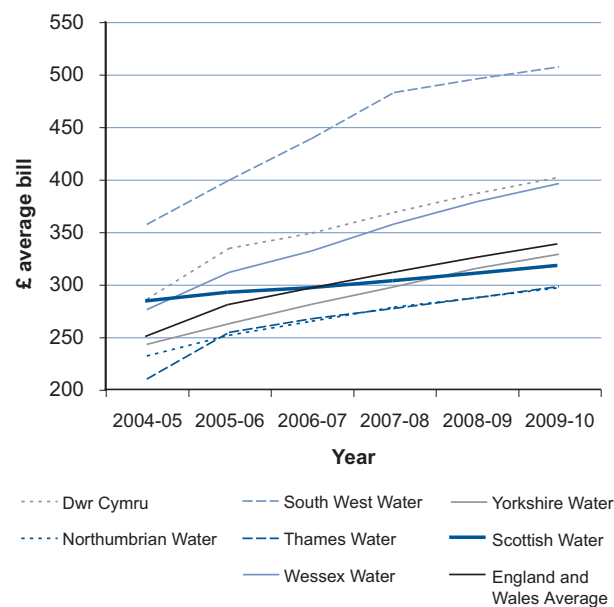
	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household unmeasured waste water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured waste water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household surface water drainage	-1.5%	-1.5%	-1.5%	-1.5%
Trade effluent	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered waste water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%

If retail price inflation were to run at 2.5%, the actual nominal increase in charges would be 2% in each year (on average) for household customers and 1% in each year (on average) for all non-household customers. If in its charges scheme Scottish Water proposes changes to tariffs within a basket that are materially different from the overall tariff basket cap, we would expect these changes to be properly justified with reference to underlying costs.

Impact on household customers' bills

Figure 1 compares Scottish Water's expected average household bill for 2006-10 with the forecast average household charge of selected water and sewerage companies in England and Wales. **It shows that average household bills in Scotland will be among the lowest in the UK by 2009-10. Bills in Scotland would be some 6% higher if Scottish Water did not have access to public sector debt.**

Figure 1: Average household water and sewerage³ bills in Scotland and in England and Wales 2006-10 (estimated outturn prices)



Provisional charge caps for Scottish Water's core wholesale business

We have also set a provisional cap on the increases in charges that Scottish Water can offer the licensed retailers of water and waste water services to non-household customers.

Scottish Water is due to submit a business plan for its retail subsidiary towards the end of December 2005. This will help inform our decision on whether we can offer the retail subsidiary permanent retail service licences. It will also help the Scottish Ministers make a decision about the assets (and liabilities) that should be transferred to the retail subsidiary from Scottish Water. Our charge cap has to remain provisional until Ministers have taken this decision, as it may have an impact on the appropriate split of costs between Scottish Water's wholesale and retail functions.

We believe that it is important that Scottish Water has the opportunity to decide how it wants to set its wholesale tariffs. We therefore asked it to identify wholesale tariffs as part of the scheme of charges process for 2006-07. These non-household wholesale charges should be consistent with the provisional wholesale revenue caps for 2005-06 and our charge caps for 2006-07.

³ Figure 1 shows the companies with the most expensive and cheapest household bills in England and Wales. We also show average household bills in Wales and the two most efficient companies (in terms of operating costs) - Yorkshire Water and Wessex Water

We expect that, as the market develops, Scottish Water wholesale may wish to rebalance tariffs to reflect better its underlying costs. We therefore set one K factor for the entire non-household wholesale business. We will scrutinise any such rebalancing carefully to ensure that the proposed tariffs are not unduly discriminatory.

The revenue cap, expected growth in the non-household customer base and the corresponding K factor are set out in Table 3.

Table 3: Provisional non-household wholesale charge limits (revenue figures in outturn prices)

	2006-07	2007-08	2008-09	2009-10
Previous year revenue	£289.1m	£293.2m	£295.5m	£301.2m
Change due to customer base changes	0.4%	0.2%	1.4%	0.9%
Revenue base for year	£290.4m	£293.8m	£299.6m	£304.0m
Allowed revenue	£293.2m	£295.5m	£301.2m	£307.9m
Allowed increase in charges in nominal terms	1.0%	0.6%	0.5%	1.3%
The K factor	-1.5%	-1.9%	-2.0%	-1.2%

Changes from the draft determination

We considered carefully all of the representations on the Commissioner’s draft determination that we received from stakeholders. We also reviewed new information that has become available since the draft determination was published. This includes Scottish Water’s annual regulatory return for the 2004-05 financial year.

Figures 2 and 3 summarise the changes we have made in our final determination compared with the Commissioner’s draft determination, and the impact of our decisions on customers.

We considered the following key issues:

- the assumed number, mix and type of customers;
- the appropriate assumptions about inflation;
- the appropriate level of, and profile for, total allowed for operating costs;
- the appropriate level of, and profile for, allowed for capital expenditure;
- the appropriate level of, and profile for, allowed for PPP operating costs; and

- the appropriate level of, and profile for, additional allowed for retail operating costs.

Figure 2 outlines the impact of our decisions on the annual increase in household bills in the 2006-10 regulatory control period.

Figure 2: Impact of our decisions on the annual increase in household bills in the 2006-10 regulatory control period

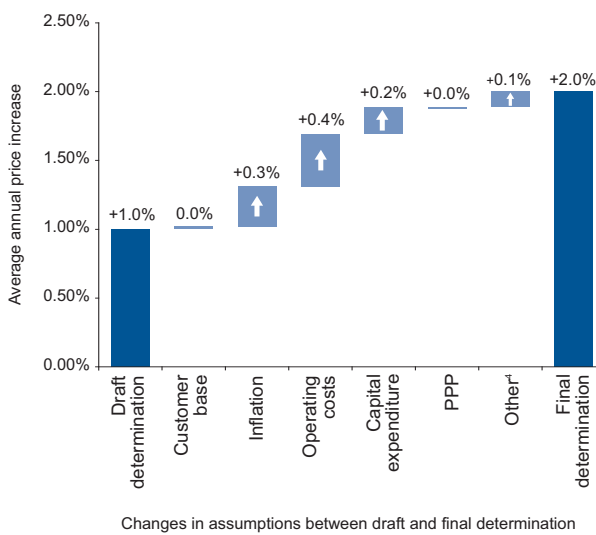
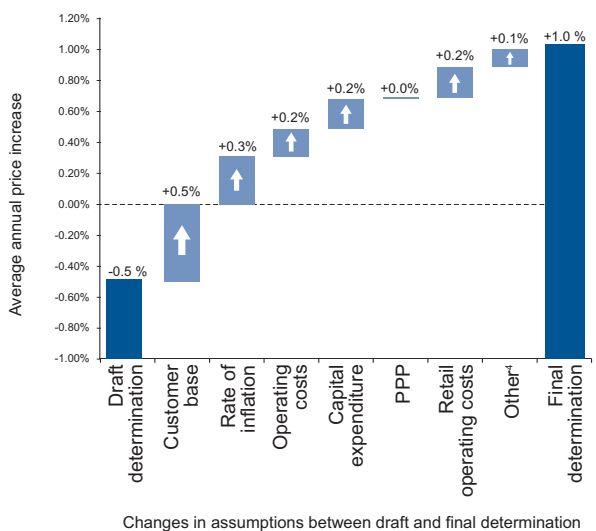


Figure 3 outlines the impact of our decisions on the annual increase in average non-household bills in the 2006-10 regulatory control period.

Figure 3: Impact of our decisions on the annual increase in average non-household bills in the 2006-10 regulatory control period



⁴ 'Other' includes changes we made in the taxation calculation and updates to our working capital assumptions.

Our decisions also have an impact on the level of borrowing that Scottish Water will require during the 2006-10 regulatory control period. We decided that it is appropriate to apply the same cash-based financial ratios to the public sector water industry in Scotland that the Office of Water Services (Ofwat) used in England and Wales. In our view, these ratios strike an appropriate balance between the charges paid by current and future customers. They are set out in Table 4⁵.

Table 4: Financial ratios used in this final determination

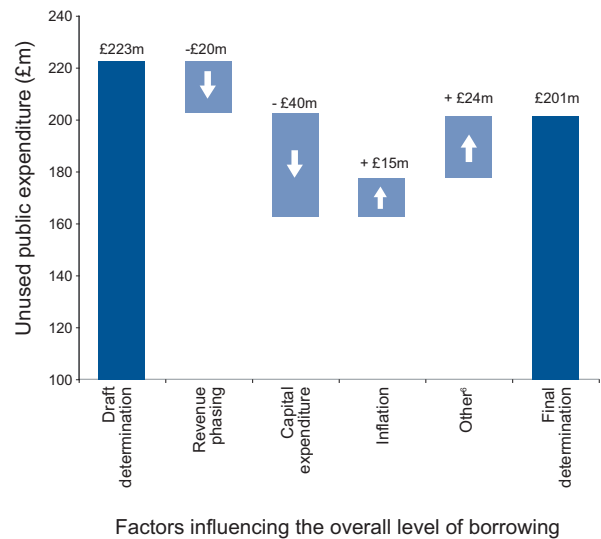
Financial ratio	Targeted value
Cash interest cover	Around 3 times
Adjusted cash interest cover	Around 1.6 times
Funds from operations: debt	Greater than 13%
Retained cash flow: debt	Greater than 7%
Gearing	Less than 65%

We accepted the Commissioner's analysis that while an increase in borrowing (beyond that consistent with compliance with the above ratios) may have reduced customers' bills at the start of the current regulatory control period, it would have reduced the prospects of charge stability and would have meant that customers faced higher overall bills in the medium term. This would have been inconsistent with the ministerial principles of charging.

In the draft determination the Commissioner concluded that Scottish Water should borrow an additional £761.4 million during the 2006-10 regulatory control period. This was £222.6 million less than the maximum borrowing that the Scottish Ministers had been prepared to make available to the water industry.

We concluded that Scottish Water can prudently incur a higher level of borrowing, without adversely affecting the prospects for charges in the next regulatory control period. This has reduced the level of unused borrowing that the Scottish Executive can redeploy to other spending priorities. The impact of our decisions is shown in Figure 4.

Figure 4: Impact of our decisions on the level of unused borrowing



In aggregate, the charge caps and appropriate level of borrowing that we have determined are such that Scottish Water (and its retail subsidiary) have £94 million more to deliver the 'essential' and 'desirable' ministerial objectives for 2006-10. Scottish Water can access £72.6 million more from customers and £21.3 million more in borrowing.

Applying RPI-X regulation to Scotland's public sector water industry

Incentives and governance

The Scottish Executive's representations on the draft determination confirmed that it is minded to make changes to the governance and incentive framework in which Scottish Water operates. We welcome these changes. This will help to ensure that customers receive the required level of service for the lowest reasonable overall cost. **The Executive's representations included the following key changes to the current governance and incentive framework⁷. The Executive agreed that:**

- **Managerial incentives should be linked to outperformance of the regulatory contract. The Scottish Executive's decision to link the payment of bonuses to Scottish Water staff with performance in meeting ministerial objectives within the financial limits set by this determination is welcome.**

⁵ We do not use Ofwat's Adjusted Cash Interest Cover ratio using maintenance expenditure as historically we have found this information to be of poor quality.

⁶ 'Other' includes changes in operating expenditure, changes in PPP charges and taxation.

⁷ These representations are available in full on our website at www.watercommission.co.uk.

- **Scottish Water should invest the proceeds of outperformance of the regulatory contract in index-linked gilts. This would represent a financial buffer that could reduce the exposure of customers to operational or financial shocks.**
- **A borrowing reserve should be established, which would be available to Scottish Water to cover costs which are outside the control of management and which could lead to an interim determination. The Executive agreed to consult the Commission before allowing access to this borrowing reserve.**

We consider that the creation of this borrowing reserve strikes a sensible balance between maintaining hard budget constraint and the flexibility to respond to increased costs that are outside the control of management. We reviewed carefully Scottish Water's representations and decided to increase the £40 million borrowing reserve proposed in the draft determination to £50 million. We believe that £50 million is likely to be more than sufficient to cover any unexpected costs (outside management control) before an interim determination would be required.

We also decided that Scottish Water should be allowed to retain the benefits of outperformance for an entire four-year regulatory control period. This will help to ensure that the proposed financial buffer can be built up more quickly. As such, we have reduced the risk that an operational shock could have an adverse impact on customers' bills. This decision addresses a key concern of the Water Customer Consultation Panels (WCCP) in their representations to us.

We believe that these changes in the incentive and governance framework make an important contribution to ensuring that customers pay no more than the lowest reasonable overall cost of delivering the ministerial objectives.

Our use of RPI-X

We have used comparative analysis to promote continued improvements in customer service standards, environmental and public health compliance and financial performance. Our approach is similar to that which other regulators, including Ofwat, employ. However, in setting targets we have not just taken account of what the companies south of the border have already achieved; we have also considered carefully Scottish Water's current level of performance.

In setting charges we identified the following factors which we consider are critical to the successful regulation of Scotland's public sector water industry:

- **There should be a hard budgetary constraint:** charge cap regulation will not be effective if Scottish Water believes that there could be an advantage from spending and/or borrowing more than is absolutely necessary.
- **There should be an incentive for Scottish Water to outperform the regulatory contract:** the contract must be transparent, achievable and subject to rigorous monitoring of results. It must also be clear that management will only be held to account for those factors that it can control.
- **The interests of management should be aligned with the level of performance** that Scottish Water is tasked with delivering.

The role of interim determinations

An interim determination is a reconsideration of a firm's price limits that is undertaken within a regulatory control period. Either the firm or the regulator can initiate an interim determination if there are material changes to the cost and revenue assumptions on which a determination is based.

Examples of factors that we would consider to be within and outside the control of management are outlined in Table 5.

Table 5: Examples of factors that are within and outside management's control

Within management's control	Outside management's control
Obtaining planning permission	Changes in planning law
Inflation risks caused by advancing or delaying the delivery of the investment programme	Capital inflation difference on planned schedule of investment delivery
	Legal changes
Overall use of electricity	Price increases caused by regulatory settlements for electricity (to the extent not captured in inflation indices)

We consider that the materiality threshold⁸ for an interim determination that is used by Ofwat in its regulation of the companies could reasonably apply in Scotland.

In the event that an interim determination is not triggered, any variances in costs that are outside the control of management would be taken into account at the next Strategic Review of Charges through the logging up and down process⁹.

⁸ Effect must exceed 10% of allowed revenue when calculated as the net present value over 10 years for operating costs, and 15 years for revenue or capital expenditure.

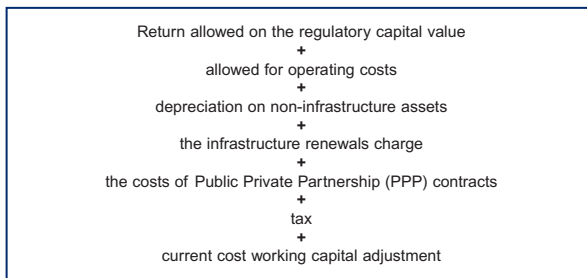
⁹ A full discussion of interim determinations and logging up and down is available in Volume 7, Chapters 6 and 7 of the Commission's draft determination. See also Appendix 11 of the draft determination.

How we have set charges

Moving towards the RCV method of charge setting

Under the regulatory capital value (RCV) method of charge setting, the revenue that Scottish Water should be allowed is calculated as set out in Figure 5.

Figure 5: Calculation of the allowed for level of revenue



We have set the RCV for the start of the regulatory control period such that, if Scottish Water were to comply with the terms of this final determination, it would comply with all of the Ofwat cash-based financial ratios at the end of the 2006-10 regulatory control period.

Allowed for rate of return

We adopted the modified version of the weighted average cost of capital (WACC) approach that the Commissioner used in his draft determination. We combined an observed real cost of debt with an estimate of an appropriate rate of return on the customer-retained earnings (the equity portion of Scottish Water's RCV) in order to produce an allowed for rate of return.

We estimated the future real rate of interest on debt for Scottish Water by looking at an average of current borrowing rates faced by Scottish Water. We concluded that a nominal pre-tax cost of debt of 4.6% was reasonable. We have also, however, made an allowance for the full cost of all embedded debt (above 4.6%).

We have set the pre-tax allowed for rate of return on the unleveraged portion of the RCV at the post-tax allowed

for rate of return for debt. This allowed for rate of return is therefore 3.22%. There is consequently no incentive for Scottish Water to seek to change its current ratio of debt to its RCV.

We noted Scottish Water's representations about the way in which the Commissioner applied the allowed for rate of return.

It is important to note that this representation does not affect the total revenue or borrowing capacity allowed to Scottish Water. This is because we fixed the initial RCV such that Scottish Water would comply with all of the cash-based financial ratios used by Ofwat in 2009-10 if it meets (or outperforms¹⁰) the terms of its regulatory contract. We also agree with the Commissioner that the initial RCV should be broadly consistent with an analysis of the RCVs of the other water and sewerage companies in Great Britain.

In the light of Scottish Water's representations we considered an alternative approach. We looked in detail at revising our assessment of the cost of capital. We considered using the observed public sector cost of debt and the same equity return used by Ofwat for the unleveraged portion of the RCV. This would have ensured that customers' bills reflected the lower public sector cost of debt. It would have increased the return that we allowed for on the un-leveraged portion of the RCV from 3.22% to 10.2%. Our analysis showed that this approach would have resulted in an RCV of between £3.5 billion and £4.1 billion, depending on our assumptions on capital structure. We are reassured that the initial RCV calculated in this way is broadly consistent with the initial RCV established in this final determination.

The RCV will in future reflect net new investment and inflation. We will consult on our approach to setting the allowed rate of return in advance of the Strategic Review of Charges for the regulatory control period beginning in 2010.

Calculating the RCV

Our calculation of the initial RCV is shown in Table 6. We have adjusted the average RCV in 2006-07. This reflects investment during 2006-07 and the reduction in the initial RCV that we included to compensate customers for the overhang from Quality and Standards II¹¹.

¹⁰ The proceeds of any outperformance should be invested in index-linked gilts. We would not include the impact of this financial buffer in our assessment of Scottish Water's financial strength.

¹¹ We discuss the extent of the investment overhang from Quality and Standards II in Chapter 20. We also discuss how we have taken account of the unsubstantiated efficiencies that East of Scotland Water Authority (ESWA) claimed in 2001.

Table 6: Calculation of the initial RCV (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Opening RCV	£3,751.3m	£4,110.3m	£4,507.3m	£4,929.2m
plus Inflation adjustment	£93.8m	£102.8m	£112.7m	£123.2m
plus New investment	£540.1m	£594.6m	£630.9m	£682.8m
less Depreciation	£186.0m	£209.2m	£228.5m	£249.5m
less Infrastructure renewals charge	£87.9m	£90.0m	£92.2m	£94.4m
less Disposal of assets	£1.0m	£1.0m	£1.1m	£1.1m
equals Closing RCV	£4,110.3m	£4,507.3m	£4,929.2m	£5,390.3m
Year average	£3,930.8m	£4,308.8m	£4,718.3m	£5,159.8m

The current and future number, mix and type of customers

Current customer base

We are concerned that Scottish Water may not have identified all the non-household customers who are receiving a service. As such, it is possible that Scottish Water should earn more revenue (at the current level of tariffs) from its existing customers. In this regard, we have noted the Commissioner's analysis of the ratio of non-household to household customers. We have also had regard to the results of analysis that Scottish Water commissioned¹².

We noted the reporting of customer numbers over the past five years. This information is summarised in Figure 6.

Figure 6: Non-household customer numbers 2000-01 to 2005-06

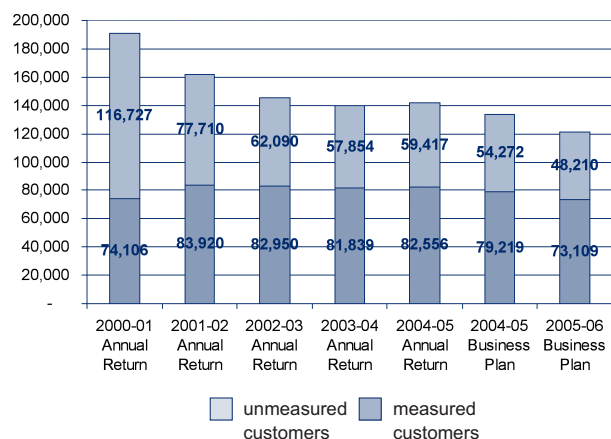


Figure 6 suggests that the non-household customer base had already been in sharp decline before Scottish Water's current 'data-cleansing' initiative¹³.

We consider that Scottish Water should compare its network and billing databases and ensure that it is billing all those who receive a service. Scottish Water has an opportunity to combine this review of its non-household customer information with its site-survey and meter installation programme.

We believe that using this, perhaps understated, initial customer base has created a significant incentive for Scottish Water to identify properties that are receiving a service and not being billed appropriately (identifying any such properties would provide Scottish Water with additional revenue). We intend to monitor developments in this area very closely.

Growth in the customer base

The Commissioner's assumptions on the number of Band D equivalent households are shown in Table 7.

Table 7: Increase in Band D equivalent households (water) in the draft determination

Band D Equivalent households	2005-06	2006-07 ¹⁴	2007-08	2008-09	2009-10
Number	1,851,306	1,853,938	1,871,402	1,888,870	1,906,336
Increase (%)		0.14%	0.94%	0.93%	0.92%

The ministerial objectives for the water industry for the 2006-10 regulatory control period require 15,000 new homes to be connected in areas that were previously development constrained. In assessing the rate of growth in the number of household customers, the Commissioner took account of these extra properties and the changes to the structure of discounts required by the Scottish Ministers.

We accept Scottish Water's representation that creating the strategic capacity to connect 15,000 houses does not require those same 15,000 houses to become billable. However, we consider that it is important that the rate of growth forecast is consistent both with the proposed investment programme to meet the ministerial objectives and with recent trends.

¹² See Table 11.9, Chapter 11 of Volume 7 of the draft determinations.

¹³ See Chapter 11 of Volume 7 of the draft determination for a full discussion of the nature and results of this 'data-cleansing' initiative.

¹⁴ Growth rates between 2005-06 and 2006-07 are lower than trend due to Ministerial Directions changing the structure of charging.

We also consider that it is prudent to allow for a time lag of two years between investment to remove a constraint on development and the resulting increase in the number of billable properties. Additionally, we recognised that while this investment will allow some 15,000 homes to be built annually in previously development constrained areas, it will replace, in part, development that would have occurred in other areas. We assumed that the current trend rate for growth in household properties reduces by 50% because of this effect.

Table 8: Increase in Band D equivalent households (water) in the final determination

Band D Equivalent households	2005-06	2006-07	2007-08	2008-09	2009-10
Number	1,851,306	1,854,414	1,872,483	1,899,049	1,925,705
Increase (%)		0.17%	0.97%	1.42%	1.40%

We adopted a similar approach in our assessment of changes in the non-household customer base. This has resulted in an overall decrease in the rate of growth in non-household connected properties compared with the rate assumed in the draft determination.

The ministerial objectives require all non-household customers to be charged (as far as practicable) on a measured basis by 2010. In our view, all customers should be billed on the basis of metered consumption as soon as the meter is installed. We consider that Scottish Water's proposal to install meters but not to use them before 2010 is impractical.

We consider that metering will be an essential element of the successful introduction of retail competition, which is due to commence in 2008. We therefore expect Scottish Water to have installed the majority of the required meters before the start of retail competition. We also consider that any customer who elects to change retail supplier must have a meter installed within one calendar month of notifying the retail subsidiary of Scottish Water of an intention to switch supplier.

Our analysis shows that average unmeasured customers' bills are lower than they would be if they paid on a measured basis for the same level of consumption. As such, installing meters would actually increase the revenue that is received from these customers. This additional revenue could reasonably be used to

reduce the impact on these customers' unmeasured bills when they switch to paying on a measured basis.

The change in the assumptions on the likely growth in household customers was offset by a reduced estimate of secondary revenue. Our revised assumptions on the likely change in the non-household customer base increased the average charge increase on non-household customers' bills in 2006-10 by 0.5% annually. The effect of these changes was a reduction in the unused borrowing of £20 million.

Inflation rates

In its representations on the draft determination, Scottish Water commented that we should use the retail price index to inflate the allowed for level of operating costs. It suggested that the Commissioner's use of the consumer price index was, in effect, a further increase in the efficiency target that was assumed in the allowed for level of operating costs in the draft determination. This was because Ofwat uses the retail price index to inflate the operating costs of the companies south of the border. We have accepted this representation.

The inflation assumptions for operating costs in both the draft and final determinations are set out in Table 9.

Table 9: Operating costs inflation assumptions

Inflation Assumptions	Draft determination (CPI)		Final determination (RPI)	
	Index	Increase (%)	Index	Increase (%)
Actual 2003-04	110.1	1.30%	182.5	2.79%
Actual 2004-05	111.7	1.45%	188.2	3.11%
Forecast 2005-06	113.9	2.00%	192.9	2.50%
Forecast 2006-07	116.2	2.00%	197.7	2.50%
Forecast 2007-08	118.5	2.00%	202.6	2.50%
Forecast 2008-09	120.9	2.00%	207.7	2.50%
Forecast 2009-10	123.3	2.00%	212.9	2.50%

Scottish Water did not make any representations about the Commissioner's approach to capital price inflation. We agree with Scottish Water that it would be preferable to use the same inflation assumptions in Scotland as Ofwat has used south of the border. We considered the recent profile of the Construction Output Price Index (COPI) to ensure that it is broadly consistent with the

assumptions that had been made by Ofwat. We concluded that it is appropriate to use a slightly lower estimate of COPI for the period 2005-10 and the higher actual COPI for 2004-05. In effect we have assumed the same value for the COPI index in 2009-10 as Ofwat used in its 2004 price determination.

Our conclusions are set out in Table 10.

Table 10: Capital expenditure inflation assumptions

Inflation Assumptions	Draft determination (COPI)		Final determination (COPI)	
	Index	Increase (%)	Index	Increase (%)
Actual 2003-04	135.3	5.46%	135.3	5.46%
Actual 2004-05	142.5	5.36%	144.8	7.02%
Forecast 2005-06	146.8	3.00%	147.0	1.55%
Forecast 2006-07	151.2	3.00%	150.5	2.40%
Forecast 2007-08	155.7	3.00%	154.1	2.40%
Forecast 2008-09	160.4	3.00%	157.8	2.40%
Forecast 2009-10	165.2	3.00%	161.6	2.40%

The change in inflation assumptions increased the cap on household bills by 0.3% annually. It also increased the cap on non-household bills by 0.3% annually. It reduced the unused borrowing by £15 million.

Allowed for operating costs

The maximum total operating costs that we have allowed for in the final determination includes both 'base' operating costs (those costs required to deliver the current level of service) and 'new' operating costs (those costs that reflect improvements in the level of service beyond those assumed in our benchmarking). We believe that the allowed for level is sufficient for Scottish Water to meet all of the 'essential' and 'desirable' objectives of the Scottish Ministers. In particular, we have taken account of comments made by the Drinking Water Quality Regulator (DWQR)¹⁵ and the Reporter. As such, we have increased the total level of operating cost to allow Scottish Water to improve the operations of its treatment plants and its responsiveness to customers. We will monitor progress using the overall performance assessment (OPA).

We reduced the allowed for level of operating costs to take account of the scope for improvement in efficiency. It is important to emphasise that by 'efficiency' we mean delivering the same level of service for less money. Efficiencies, by definition, cannot result in lower levels of service.

In aggregate, we have allowed for Scottish Water's operating costs to be 8.4% higher in real terms at the end of the current regulatory control period. This compares with the c. 6% allowed for by Ofwat for more efficient companies that offer a better level of service to customers. Historical evidence suggests that Scottish Water and the companies south of the border are likely to perform better than the minimum that is required in their regulatory contracts. This is illustrated in Figures 7 and 8.

Scottish Water's management does, of course, have discretion to use these additional operating costs to recruit extra staff to assist in meeting ministerial objectives.

¹⁵ See, for example, the comments of the DWQR in his Annual Report of 2004.

Figure 7: Performance against operating cost targets in England and Wales since privatisation (2003-04 prices)

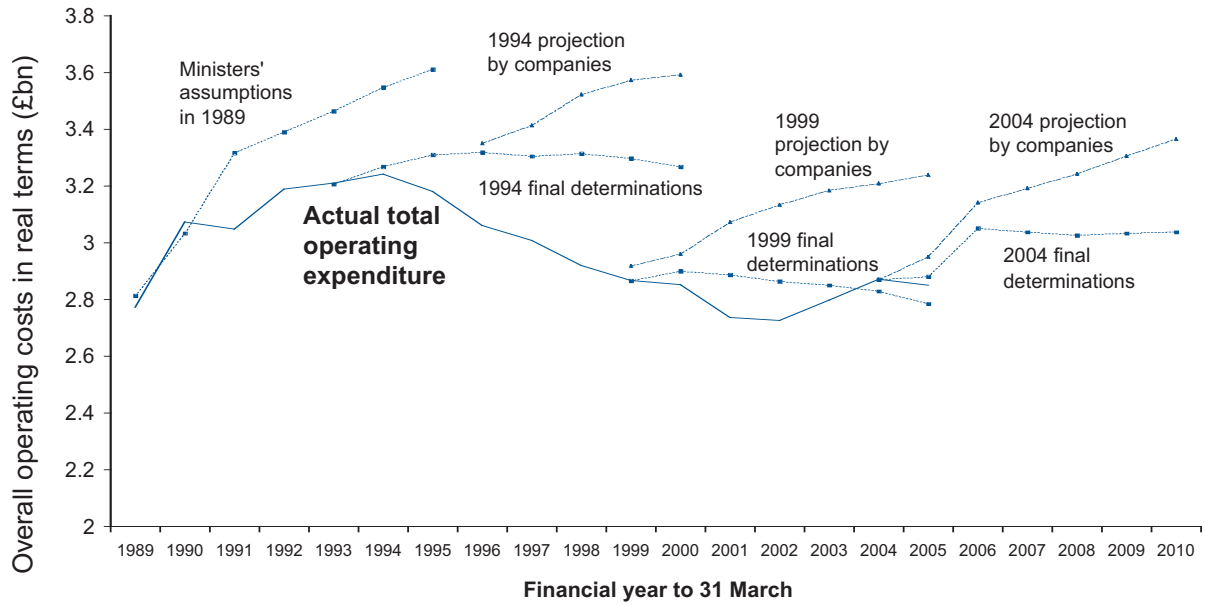
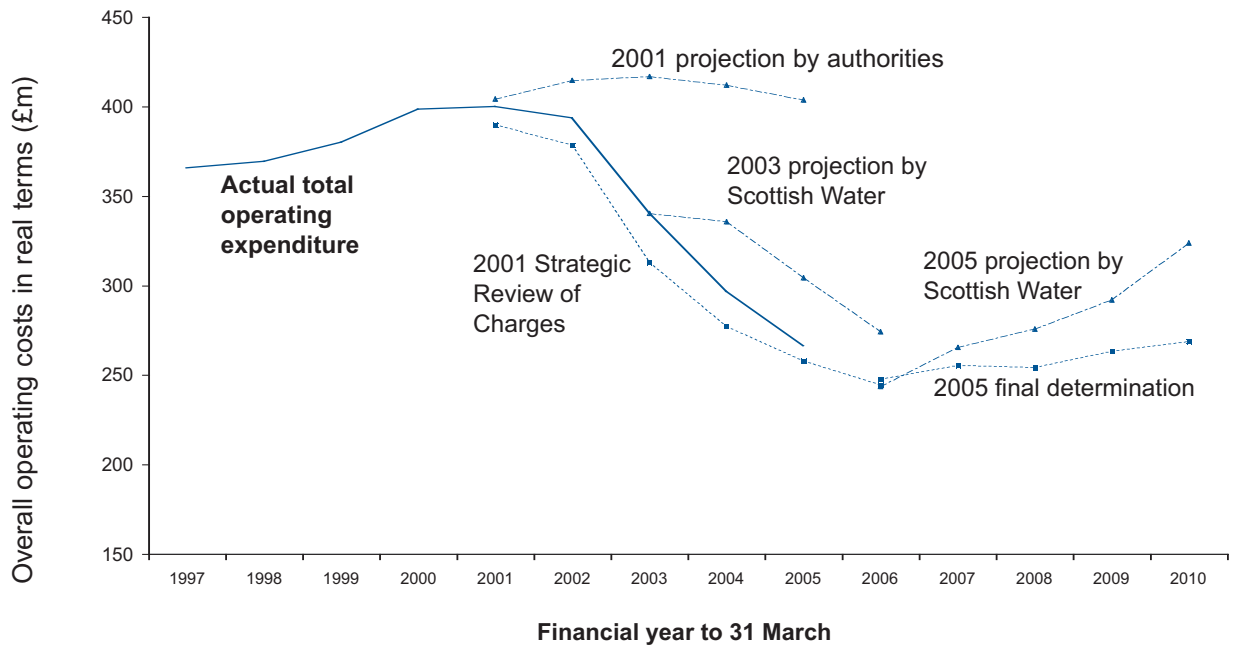


Figure 8: Performance against operating cost targets in Scotland since 2001 (2003-04 prices)



The calculation of the allowed for level of operating costs

Establishing a baseline for operating costs

For each regulatory control period we identify one base year. We have decided to use 2004-05 as the base year for this final determination.

To establish the level of baseline operating costs for 2004-05 we:

- take reported core costs,
- adjust for atypical costs (or savings),
- remove exceptional costs, and
- ensure that cost allocation practices are consistent with those in England and Wales.

Our baseline for operating costs also takes account of potential changes in costs during the regulatory control period. Examples of such changes include:

- non-household rates,
- pension costs, and
- energy costs.

We analysed these factors carefully to ensure that Scottish Water has sufficient resources to deliver an improving level of service (consistent with the OPA milestones that we discuss below).

Table 11 summarises the baseline that we established.

Table 11: Summary of the operating cost baseline 2006-10 (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Base operating costs (water)	£144.2m	£144.2m	£144.2m	£144.2m
Increase in operating costs – water	£5.0m	£7.2m	£9.7m	£10.4m
Base operating costs – waste water	£122.0m	£122.0m	£122.0m	£122.0m
Increase in operating costs – waste water	£1.4m	£2.0m	£2.5m	£3.0m
Total base operating costs	£272.6m	£275.4m	£278.3m	£279.5m

New operating costs

During the 2006-10 regulatory control period, Scottish Water will incur new operating expenditure to deliver improvements in:

- environmental compliance,
- drinking water quality,
- levels of service to customers, and
- the supply/demand balance.

In its second draft business plan, Scottish Water submitted a total claim for new operating expenditure of £37 million by 2009-10, before efficiencies.

Table 12: Scottish Water's claimed new operating expenditure (pre-efficiency) 2006-10¹⁶ (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Water	£0.9m	£4.2m	£6.3m	£28.1m
Waste water	£1.9m	£3.3m	£5.1m	£9.1m
Total	£2.8m	£7.5m	£11.4m	£37.2m

We assessed Scottish Water's claim in detail. We also reviewed the Commissioner's analysis in the draft determination.

Our analysis has identified several reasons why less new operating expenditure should be allowed for. One of the most significant of these is that the companies in England and Wales in 2003-04 were already delivering enhanced water quality standards. This cost is, therefore, already included in our benchmarking of relative efficiency. Our conclusions are detailed in Table 13.

Table 13: Allowed for level of new operating expenditure (pre-efficiency) 2006-10¹⁷ (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Water	£0.2m	£0.4m	£1.3m	£6.6m
Waste water	£3.1m	£3.6m	£4.9m	£7.9m
Total	£3.2m	£4.0m	£6.2m	£14.5m

¹⁶ Totals may not add exactly due to rounding.

¹⁷ Totals may not add exactly due to rounding.

Additional operating costs to address leakage, meet quality obligations and improve levels of service to customers

We noted Scottish Water's representation that we should not make a scope adjustment for active leakage control when we assess the operating cost efficiency gap. We are not persuaded by this argument. **However, we consider that it is appropriate to allow Scottish Water the full cost of efficient pro-active leakage control from 2008-09. Scottish Water will not have fully established its DMAs¹⁸ until 2008-09 and, in the absence of this information, pro-active leakage control is not likely to be properly effective¹⁹.** Our allowance is set out in Table 14.

Table 14: Allowance for active leakage control (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Allowance for active leakage control (2003-04 prices)	£0.0m	£0.0m	£8.0m	£8.0m

We also concluded that some of the ministerial objectives may be efficiently delivered through the use of targeted operating cost solutions. We consider that Scottish Water could reasonably identify such solutions in its investment appraisals if it used the Ofwat allowed rate of return on the un-leveraged portion of the regulatory capital value (10.2%). This would be consistent with operating costs being funded from customers' charges in the year that they are incurred.

Our allowance for additional operating costs (in 2003-04 prices) is set out in Table 15.

Table 15: Additional allowed for operating costs to meet ministerial objectives (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Additional operating costs to meet ministerial objectives	£2.0m	£3.0m	£4.0m	£5.0m

We consider that the overall performance assessment (OPA) is the most effective measure of performance that is currently available. We have noted that Scottish Water has favoured measurement of its performance using its guaranteed minimum standards. We therefore made a small

additional allowance to assist Scottish Water in improving its OPA performance. This additional allowance is set out in Table 16.

Table 16: Additional operating cost allowance to improve OPA performance (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Additional operating costs to improve OPA performance	£3.0m	£1.0m	£0.0m	£0.0m

We consider that the Commissioner's approach in assessing the operating cost efficiency gap between Scottish Water and the leading companies south of the border was robust. In particular, we agree that any assessment of efficiency should take account of differences in the levels of service provided either side of the border. Unfortunately, Scottish Water did not provide the information in its second business plan that the Commissioner requested. We consider that the Commissioner's response of setting milestones to monitor improvements in the level of service that Scottish Water provides each year was reasonable.

We received a number of representations about the Commissioner's use of the OPA. We looked carefully at the weightings included in the OPA and consider that they are broadly consistent with the results of most market research that has been completed in both Scotland and in England and Wales²⁰. However, we also recognise that there are some important parameters where performance cannot easily be compared. As such, it may be appropriate to add some further measures to ensure that Scottish Water's overall improvement can be measured relative to all aspects of its performance. We will consult stakeholders on any such changes before the next Strategic Review of Charges.

Scottish Water's performance in complying with the discharge consents at its waste water treatment works is much poorer than that of the companies south of the border. We recognise that Scottish Water is not likely to be able to improve its level of compliance sufficiently to increase its OPA score in this area.

We considered Scottish Water's submission and accept that the Commissioner was being a little too ambitious in his desire for improved performance.

¹⁸ District Meter Area; an area that has a defined and permanent boundary, usually containing 500-3,000 properties, into which flows are continually monitored.

¹⁹ Effective leakage control does not necessarily require replacement of water mains. The most effective approach is likely to be pressure reduction and a more proactive approach to identifying and fixing leaks.

²⁰ See, for example, the Water Industry Commissioner's Customer Service Report for 2003-04.

We carefully reviewed Scottish Water's current performance and areas where we consider improvements should be made. We have revised the OPA targets included in the draft determination²¹ as set out in Table 17.

Table 17: Milestones for the overall performance assessment of customer service

Adapted OPA	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Draft determination	159	159	159	195	232	268	305
Final determination		177	177	195	213	232	250

Establishing the operating cost efficiency gap

We used three separate techniques to compare Scottish Water's performance against that of the companies in England and Wales (all of which seek to take account of asset, customer and topographical differences):

- the econometric models developed by Ofwat;
- a modified version of the Ofwat models (reworked to include information from Scottish Water); and
- an alternative model developed by this Office.

The benchmark company for the water service in England and Wales was Wessex Water. For the sewerage service, the benchmark company was Yorkshire Water. We have made the same adjustments to the results of our comparisons as Ofwat²².

We have updated the analysis contained in the draft determination to take account of the latest available information on Scottish Water's assets and performance. This information comes principally from Scottish Water's 2004-05 annual return.

Table 18 shows the results of our revised analysis of efficiency taking account of Scottish Water's performance in 2004-05.

Table 18: Scottish Water's efficiency gaps after adjustments of the residuals

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Average – water service	2.7%	2.0%	-3.7%	-0.1%
Wessex – water service	19.6%	19.2%	22.8%	24.1%
Yorkshire – water service	16.2%	15.9%	6.0%	11.0%
Average – sewerage service	13.1%	10.9%	9.7%	9.2%
Wessex – sewerage service	24.2%	22.8%	22.7%	22.2%
Yorkshire – sewerage service	26.0%	24.5%	28.7%	28.2%
Average – combined	7.4%	6.0%	2.3%	4.2%
Wessex – combined	21.7%	20.8%	20.1%	21.0%
Yorkshire – combined	20.6%	19.7%	17.2%	19.5%

There is little difference between the various approaches we used when we look at relative performance for both water and sewerage combined. There is around a 20% operating cost efficiency gap (before adjustments) between Scottish Water and the frontier company.

Adjustments to our models for special factors

We considered carefully the representations on special factors (adjustments that the modelled answer had not fully taken into account) that we received from stakeholders. We concluded that we should marginally reduce the allowance made in the draft determination for such factors. Scottish Water's assessment (in 2003-04 prices) of the impact of special factors is outlined in Table 19. We also include the results of the Commissioner's analysis of these claims. We noted the Commissioner's analysis that Scottish Water's claim for special factors would have made it the frontier efficient company, by some distance, in the supply of water by 2005-06. We agree with the Commissioner that this would not have been consistent with Scottish Water's business plan.

²¹ We have set the levels of service milestones in an adapted overall performance assessment. This is described in detail in Chapter 14 of Volume 6 of the draft determination.

²² Ofwat makes adjustments to the residuals (the measure of inefficiency) of 10% for the water service and 20% for the sewerage service.

Table 19: The annual financial impact of special factors (2003-04 prices)²³

	Second draft business plan	Draft determination	Revised claim (Sept 2005)	Final determination
Leakage	£9.8m	£0.0m	£9.8m	£0.0m
Central regulatory laboratory	£0.7m	£0.7m	£0.7m	£0.7m
Travel costs	£11.4m	£6.5m	£11.4m	£6.8m
Service reservoirs and water towers	£2.1m	£0.0m	£2.1m	£0.0m
Electricity	£4.7m	£2.0m	£4.7m	£1.9m
Supply of materials to rural locations	£0.5m	£0.0m	£0.0m	£0.0m
Bad debt	£7.3m	£2.6m	£7.3m	£3.5m
Sewer laterals	£11.7m	£3.9m	£11.7m	£3.2m
Waterworks sludge disposal	£2.3m	£0.9m	£1.2m	£0.5m
Political queries	£0.3m	£0.0m	£0.0m	£0.0m
Cryptosporidium	£2.0m	£0.0m	£1.7m	£0.0m
Public septic tanks	–	£0.8m	£1.2m	£0.9m
Total	£52.8m	£17.4m	£51.8m	£17.5m

Adjustments for differences in the scope of activities

In England and Wales, the companies provide a broadly equivalent level of service to their customers. The scope of activity each company provides is also comparable. In general, therefore, Ofwat does not have to adjust the result of its models to reflect any differences in the level of service or the scope of activities between companies.

In Scotland, by contrast, the scope of activities and the levels of service provided to customers are different from those provided in England and Wales. Such differences matter to customers, impacting not only on the service they receive but also on the prices they pay.

The adjustments we have made to reflect such differences in the scope of activities are set out in Tables 20 and 21.

Table 20: Summary of adjustments to the allowed for level of operating expenditure for differences in the scope of activities for the water service²⁴ (2003-04 prices)

Water activity	Effect on Scottish Water's allowed operating costs	Value of adjustment to Yorkshire Water's operating costs
Household metering	Decrease	£1.9m
Non-household metering	Decrease	£0.3m
Leakage	Decrease	£6.8m
Nitrate removal	Decrease	£1.6m
Legal duty to promote efficient water use	None	Immaterial
Reporter costs	Decrease	£0.2m
Total	Decrease	£10.8m

Table 21: Summary of adjustments to the allowed for level of operating expenditure for differences in the scope of activities for the waste water service²⁵ (2003-04 prices)

Waste water activity	Effect on Scottish Water's allowed for operating costs	Value of adjustment to Yorkshire Water's operating costs
Household metering	Decrease	£1.9m
Non-household metering	Decrease	£0.3m
Reporter costs	Decrease	£0.2m
Total	Decrease	£2.3m

The adjustments represent approximately 12% of Yorkshire Water's modelled water operating cost²⁶ and 3% for modelled sewerage operating costs. The effect that this has on the efficiency gap is shown in Table 22. In our base year, 2004-05, the adjustments for special factors and for the scope of activities led to an efficiency gap of 23% for the water service and 21% for the waste water service.

Table 22: Scottish Water's operating cost efficiency gaps after adjustments for special factors and scope of activities (modified Ofwat models) 2004-05²⁷

	Water	Waste water
Initial gap	21.3%	29.6%
Gap after adjustment for special factors	15.0%	19.3%
Gap after adjustment for scope	23.4%	21.0%

²³ Totals may not add exactly due to rounding.

²⁴ Totals may not add exactly due to rounding.

²⁵ Totals may not add exactly due to rounding.

²⁶ We have also examined the impact on Wessex Water, the other leading comparator company. The impact on both Wessex Water and Yorkshire Water is very similar.

²⁷ The gap for the water service is in relation to Wessex Water and for the waste water service in relation to Yorkshire Water.

Scope for reduction in operating costs

We accepted Scottish Water's representation on the rate at which it should be expected to improve its relative performance over this regulatory control period. We have therefore required Scottish Water to narrow 50% (reduced from the 60% required in the draft determination) of the gap to the leading companies. We set a 50% target (not the 48% implied by the regulatory control period being a year shorter²⁸) because of the rapid improvement that Scottish Water is likely to have made during 2005-06 and because we believe that improvement in efficiency is likely to be easier in the early years of a regulatory control period.

Allowed for level of operating expenditure

We set the profile for Scottish Water's allowed for operating expenditure during the 2006-10 regulatory control period that is outlined in Table 23.

Table 23: Summary of allowed for total operating costs for 2006-10²⁹ (2003-04 prices unless stated)

		2006-07	2007-08	2008-09	2009-10
	Baseline operating expenditure	£266.2m	£266.2m	£266.2m	£266.2m
Less	Efficiencies in the baseline	-£24.9m	-£28.0m	-£31.2m	-£34.3m
Plus	Assessed changes to baseline operating expenditure	£6.5m	£9.2m	£12.2m	£13.4m
Less	Efficiencies in assessed changes to the baseline	-£0.3m	-£0.7m	-£1.3m	-£1.7m
Plus	New operating expenditure	£3.2m	£4.0m	£6.2m	£14.5m
Less	Efficiencies in new operating expenditure	-£0.2m	-£0.4m	-£0.8m	-£2.3m
Plus	Additional operating costs ³⁰	£5.0m	£4.0m	£12.0m	£13.0m
Equals	Sub-total operating expenditure	£255.4m	£254.2m	£263.3m	£268.8m
Plus	PPP operating expenditure ³¹	£113.9m	£113.5m	£114.0m	£115.9m
Plus	Inflation ³² from 2003-04 (outturn prices)	£30.8m	£40.6m	£52.1m	£64.1m
Equals	Total allowed operating expenditure (outturn prices)	£400.1m	£408.4m	£429.4m	£448.7m

Our conclusions on the allowed for level of operating costs has increased the cap on household bills by 0.4% annually. It has similarly increased the cap on non-household bills in 2009-10 by 0.2% annually. It has no material affect on the level of unused borrowing.

The investment programme

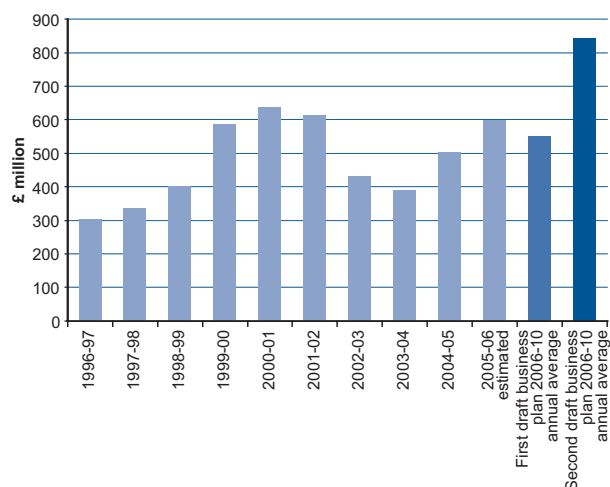
Scottish Water's second draft business plan (April 2005)³³

Scottish Water's second draft business plan set out its view of the investment required to deliver the ministerial objectives. Scottish Water stated that it would need to invest £3.37 billion to meet the Ministers' 'essential' and 'desirable' objectives over the same period. Some £2.92 billion would be required to meet the Ministers' 'essential' objectives. The second draft business plan claimed that delivering even the 'essential' objectives set out in the February Ministerial Guidance would lead to an 88% real increase in charges. Scottish Water suggested instead:

- a re-phasing of the investment objectives, with less being undertaken in 2006-10 and more in 2010-14;
- increasing the borrowing limits permitted to Scottish Water; or
- reducing the scope of the objectives.

Figure 9 compares the total annual investment suggested by the first and second draft business plans with historic and actual spending.

Figure 9: Total investment per year – comparison of actual level of investment with first and second draft business plans (2003-04 prices)



²⁸ In England and Wales, the regulatory control period is five years. A pro-rata adjustment of the extent of catch-up would therefore be four-fifths of 60%, or 48%.

²⁹ We have applied actual inflation in 2004-05 and assumed annual inflation of 2.5% (RPI) between 2005-06 and 2009-10.

³⁰ Additional operating costs allowed to improve service to customers, improve operational performance at some assets and to conduct pro-active leakage control.

³¹ We discuss the allowed for PPP costs later in this chapter.

³² We have assumed annual inflation of 2.5% (RPI) between 2004-05 and 2009-10.

³³ Scottish Water's second draft business plan is available on our website: www.watercommission.co.uk

The draft determination

The Commissioner analysed the level of capital expenditure proposed in Scottish Water's second draft business plan. He set out his view of the level of investment required to deliver the 'essential' and 'desirable' ministerial objectives for the 2006-10 regulatory control period. He considered capital maintenance and enhancement investment separately.

Capital maintenance

The Commissioner estimated that capital maintenance investment (post-efficiency) should be between £647 million and £780 million. The Commissioner estimated that an average company with Scottish Water's asset base would have required just over £585 million to maintain levels of service to customers. He calculated that the best performing company in 2003-04 incurred capital maintenance costs that were around 8% lower than that of the average company south of the border. The Commissioner allowed for additional capital maintenance to address leakage, improve asset information and address the priorities of the quality regulators. He also adjusted his allowance to take account of Scottish Water's relative inefficiency in capital expenditure procurement.

Enhancement investment

The Commissioner analysed each area of the proposed investment programme and established the lowest realistic and highest estimated cost of meeting ministerial objectives. He identified a number of areas where Scottish Water had taken a particularly risk-averse approach in defining the work that was required. His conclusions are summarised in Table 24.

Table 24: Draft determination conclusions on the baseline enhancement investment programme (pre-efficiency) (2003-04 prices)

Investment category	Scottish Water project cost totals	Highest estimated cost	Lowest realistic cost
Drinking water quality	£1,063.7m	£752.0m	£569.6m
Environmental	£845.2m	£386.8m	£260.4m
Customer service + initial retail investment	£84.1m	£98.4m	£98.4m
Growth (contribution from customer base)	£291.4m	£214.9m	£184.7m
Total 2006-10	£2,284.4m	£1,452.2m	£1,113.1m

Scope for efficiency

In determining the scope for efficiency in capital expenditure, the Commissioner took account of the approach used by Ofwat to assess the scope for further improvement by the companies in England and Wales. He explained how he had adjusted this approach to take account of the situation in Scotland.

He used Ofwat's cost base approach to benchmark Scottish Water's efficiency in delivering capital enhancement projects. He took account of special factors relating to the industry in Scotland and asked Ofwat to ensure that his use of the cost base was properly consistent with the approach south of the border. He identified that the scope for efficiency was likely to be in a range from 15.4% to 20.8%, averaged over the four-year capital programme.

Allowed for level of capital expenditure

The Commissioner applied his estimates of the scope for capital efficiency to the investment programme that he considered necessary to deliver the ministerial objectives. The resulting post-efficiency investment profile, including the capital maintenance element, is shown in Table 25.

This investment also takes account of the likely overhang of investment from the current regulatory control period and the unsubstantiated claim for efficiency that was made by the former East of Scotland Water Authority in 2001.

**Table 25: Allowed for level of capital expenditure
2006-10 (post-efficiency) in the draft determination
(2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10	Total
Capital maintenance, current lowest realistic	£90.9m	£171.1m	£187.3m	£197.6m	£646.9m
Capital maintenance, highest estimated	£109.6m	£206.3m	£225.9m	£238.3m	£780.0m
Water quality, current lowest realistic	£63.4m	£119.3m	£130.6m	£137.8m	£451.1m
Water quality, highest estimated	£89.4m	£168.3m	£184.2m	£194.3m	£636.2m
Waste water quality, current lowest realistic	£29.0m	£54.5m	£59.7m	£63.0m	£206.2m
Waste water quality, highest estimated	£46.0m	£86.5m	£94.8m	£99.9m	£327.2m
Customer service, current lowest realistic	£9.3m	£17.5m	£19.1m	£20.2m	£66.1m
Customer service, highest estimated	£9.9m	£18.7m	£20.4m	£21.6m	£70.6m
Growth, current lowest realistic	£21.9m	£41.2m	£45.2m	£47.6m	£156.0m
Growth, highest estimated	£26.8m	£50.5m	£55.3m	£58.3m	£190.8m
Introduction of competition, lowest estimated	£8.5m	£2.4m	£0.5m	£0.5m	£11.9m
Introduction of competition, highest estimated	£9.1m	£2.6m	£0.5m	£0.5m	£12.7m
Total Quality and Standards III, current lowest realistic	£222.9m	£406.1m	£442.4m	£466.7m	£1,538.2m
Total Quality and Standards III, highest estimated	£290.8m	£532.8m	£581.1m	£612.9m	£2,017.5m
Overhang from Quality and Standards II	£224.6m	£28.4m	£0.0m	£0.0m	£253.0m
East of Scotland Water Authority unsubstantiated efficiency adjustment	-£14.4m	-£13.9m	-£13.5m	-£13.1m	-£54.9m
Grand total, current lowest realistic	£433.2m	£420.6m	£428.9m	£453.5m	£1,736.2 m
Grand total, highest estimated	£501.0m	£547.3m	£567.5m	£599.8m	£2,215.6 m

The Commissioner undertook computer-based risk analysis calculations to estimate the level of investment that should be allowed for in setting charges. His analysis suggested that, given the ranges he assumed³⁴, there was less than a 2% chance that the least efficient company south of the border would need more money than had been allowed to complete this programme.

Our conclusions on the appropriate level of capital expenditure

We reviewed carefully the conclusions of the Commissioner, stakeholders' representations and the new information and analysis that have become available since the Commissioner published his draft determination. We concluded that we should allow for more capital expenditure than the Commissioner assumed in setting charge caps in his draft determination. In increasing the allowed for total level of investment, we have allowed for additional investment to alleviate development constraints³⁵ (in line with the

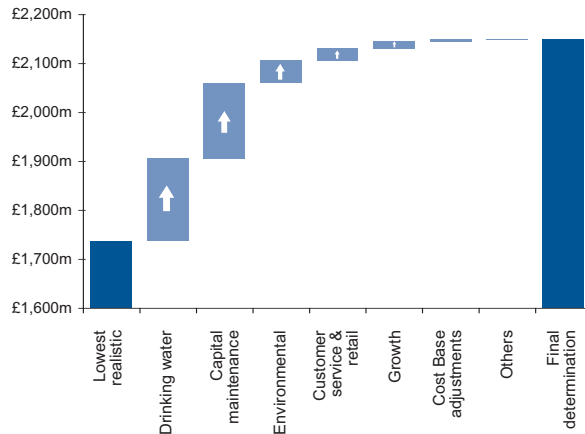
Scottish Executive's consultation, *Connecting to the system*). In our view, Scottish Water has significant scope to improve the efficiency of its procurement of capital expenditure. We concluded that the scope for efficiency is at the top end of the range identified by the Commissioner. We therefore reduced the allowed for level of capital expenditure by 36.6% from Scottish Water's investment plan in its second draft business plan. This amounts to around 3% less than the maximum investment that the Commissioner considered reasonable. We understand that Ofwat reduced the enhancement investment proposed in United Utilities' second draft business plan by a broadly similar amount to reflect its view on the scope of investment required and the scope for improved efficiency.

Figure 10 summarises the changes we have made to the draft determination.

³⁴ The Commissioner assumed there was a 5% risk that the lower limit was too high and that the upper limit was too low.

³⁵ This extra investment is in line with the Scottish Executive's consultation *Connecting to the system: Consultation on Paying for Connection to the Water and Sewerage networks*, August 2005.

Figure 10: Changes to the draft determination's allowed for capital expenditure (2003-04 prices)



At the beginning of June 2005, Scottish Water submitted a revised Table C covering both the 'essential' and 'desirable' investment objectives. We used this revised Table C in making our assessment of the allowed for level of capital expenditure in the final determination.

In reaching our conclusions, we have had regard to the following principles:

- **Deliverability:** we have ensured that Scottish Water is resourced to carry out the strategic studies that will ensure that ministerial objectives can be delivered in a timely and cost-effective way. We have also considered the mix and type of projects that Scottish Water is required to deliver and compared this to the investment programmes that have been successfully delivered south of the border.
- **Reasonable cost:** we have noted the capital unit costs that have been achieved by the companies south of the border and the conclusions of the Commissioner's consultants. We have taken account of Scottish Water's current performance in many areas. **As such, we have allowed for a higher level of spend than could have been analytically justified with reference to the historic performance of the industry south of the border.** We consider that allowing for an even higher level of spend would not be consistent with our duty to set charges that reflect the lowest reasonable overall cost of delivering the ministerial objectives.
- **Minimising whole life costs:** we have noted the comments of the DWQR, the Reporter and Faber Maunsell that improvements in operational practice

could contribute to the achievement of the ministerial objectives. We have allowed for additional operating costs to ensure that Scottish Water should not feel constrained by operating cost efficiency targets to adopt a higher cost capital investment solution to meet ministerial objectives.

- **Best value delivery:** we believe that Scottish Water must continually seek out the most cost-effective way to deliver the capital investment programme.
- **Maintaining momentum:** we consider that Scottish Water must maintain momentum in its progress towards achieving the ministerial objectives. Many of the ministerial objectives (and indeed the overhang from Quality and Standards II) could be delivered quickly without compromising either their effectiveness or their efficiency. We do not believe that our comments on the need for a strategic approach or other external events should be an excuse for a delay in achieving the ministerial objectives.

Allowed for capital maintenance

We considered the evidence in this area with great care. We concluded that it is appropriate to increase the allowance that was contained in the draft determination. Our allowance is broadly consistent with that claimed by Scottish Water after we adjust for the scope for procurement efficiency.

Scottish Water highlighted in its second draft business plan that its knowledge of its asset base is poor. We note that Scottish Water has not provided us with a detailed justification of the additional capital maintenance that it claims to need relative to the investment that it has made historically. There is therefore a significant risk that an increased allowance for capital maintenance would not be spent effectively.

In our view, there is little evidence to suggest that a large increase in the level of capital investment is required to maintain the serviceability of assets to customers. There is clearly scope for improved procurement efficiency and this alone should result in improved performance relative to the current regulatory control period. **We consider that Scottish Water has to make significant progress in improving its knowledge of its asset base and should seek to demonstrate consistent and effective use of the common framework approach³⁶.**

³⁶ Capital maintenance planning: A common framework (CMPCF) is a common framework developed by the UK water industry for its approach to capital maintenance planning. The principles of the CMPCF have been widely accepted and are being progressively implemented by water service providers.

We considered six different approaches to defining the appropriate level of capital maintenance. The range of results was within 5% of our allowance. In our view this would suggest that our allowance is a fair assessment of the lowest reasonable overall cost of maintaining the serviceability of the assets to customers.

Table 26 compares our conclusions with the Commissioner's allowance in his draft determination.

Table 26: Our assessment of the required level of capital maintenance (2003-04 prices)

Capital maintenance	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for spending
Econometric models baseline using 2003-04 information		£585.5m	£585.5m	£585.5m
Additions to baseline for 2004-05 information				£32.2m
Revised baseline				£617.8m
Revised baseline at econometric benchmark efficiency				£585.6m
Estimated baseline at Scottish Water's efficiency				£746.2m
Efficiency challenge				-£77.0m
Efficiency adjustment		-£33.3m	£52.8m	-
Baseline after efficiency		£552.2m	£638.3m	£669.2m
Reallocation of central lab costs		-£2.8m	-£2.8m	-£2.8m
Drinking water (public health) addition		£20.0m	£20.0m	£10.0m
Environment addition		£20.0m	£20.0m	£20.0m
Progress to common framework		-	£15.0m	£15.0m
Additional leakage money		£40.0m	£40.0m	£40.0m
Iron & manganese (from quality)		£17.5m	£17.5m	£20.2m
Metering		-	£12.0m	-
Quality programme		-	£20.0m	-
Sewer laterals				£11.5m
Cryptosporidium sampling equipment				£0.1m
Key MWH exceptional items - trunk main investigations				£3.2m
Key MWH exceptional items - dams and reservoirs				£4.0m
Key MWH exceptional items - Invercarnie aqueduct				£8.5m
Key MWH exceptional items - dual manholes, Buchan traps				£0.4m
Key MWH exceptional items - outfalls				£1.3m
Capital maintenance total	£1,068.1m	£646.9m	£780.0m	£800.6m

Water quality

Water treatment works

We noted the concerns expressed by both Scottish Water and the DWQR in relation to the Commissioner's assessment of the required level of investment in water treatment works. We also noted that Faber Maunsell decided to conduct a detailed internal review of its conclusions and that Faber Maunsell's revised report did not change the results of its analysis.

In general we believe that we could reasonably have set the allowed for level of investment in water treatment works at or just below the highest estimated cost used by the Commissioner in his draft determination (£581.6 million).

The DWQR suggested that a smaller reduction of 24% would be appropriate. He considered that it may be appropriate to take the average of the 15% reduction suggested by the Reporter and the 32% identified by Faber Maunsell³⁷.

While we believe that a larger adjustment could be justified we have decided to accept the DWQR's representation. This reduces the pre-efficiency level of investment required from £834.5 million to £637.5 million.

Our analysis of Scottish Water's proposed investment programme at water treatment works would appear to include a number of plants scheduled to be upgraded in the 2006-10 regulatory control period that already received significant investment in the last four years³⁸. We have some concerns that this may represent double counting but have made no allowance for this.

³⁷ This is after an adjustment to the Faber Maunsell reduction to remove their assessment of 'need'.

³⁸ According to its quarterly investment return, Scottish Water is investing £9 million over the period April 2002 to March 2006 at Loch Eck Water Treatment Works, which supplies Dunoon and the Cowal peninsula. Its press release dated 3 November 2005 said "The present supply is safe to drink, but does not meet the latest European standards. In addition to this, the raw water which supplies Loch Eck has a low risk of Cryptosporidium. This essential investment will address all these issues." However, Scottish Water's Table C submission for investment over April 2006 to March 2010 identifies £9.6 million to upgrade water treatment at this works (project autocode 3386). Faber Maunsell noted in its assessment of this site that some proposed improvements ignored the work already carried out.

Iron and manganese

We included this investment (adjusted only to reflect the scope for efficiency) in our allowance for capital maintenance. This reduces the allowed for investment in improving drinking water quality by £25.4 million³⁹ but increases the allowed for investment in capital maintenance by £20.2 million (£25.4 million less the efficiency target)⁴⁰.

Water resources

We are concerned about the high degree of uncertainty surrounding the proposed investment in water resources. In setting the allowed for level of investment, we considered the importance of ensuring that Scottish Water takes a holistic approach to its investment decisions in improving water treatment and managing its abstractions. Clearly, it would not be appropriate to upgrade or conduct pro-active maintenance at a water treatment works that may later be closed. The ministerial objectives require Scottish Water to:

“reduce abstraction and provide increased compensation flows at all drinking water sources in 78 water resource zones”⁴¹.

Scottish Water proposes to spend £128 million to meet this objective. In our view, investment in leakage reduction is likely to go a long way towards meeting the ministerial objective for reduced abstraction.

Scottish Water’s investment programme addresses 230 of the 368 existing water treatment works (over 60%). Even at the lower level of funding that we believe is required to meet the ministerial objectives on water quality, the proposed investment over the four-year regulatory control period represents around one-third of the total replacement cost of the assets. In our view, it is highly unlikely that this investment would not be influenced by the proposals to reduce abstractions in 78 water resource zones.

We consider that there is an opportunity to achieve synergies in the delivery of these separate ministerial objectives. Indeed, we believe that such a significant level of investment in water treatment would appear to offer a unique opportunity to rationalise the water treatment asset base. We note that the location of raw water abstractions and water treatment works has been built up historically on the basis of political boundaries, rather than around optimal supply strategies.

We would expect Scottish Water to carry out proper strategic analysis of the opportunities for rationalising water treatment works, prior to investing in water quality improvements at these sites. We have allowed £5 million in our allowed for capital expenditure (pre-efficiency) so that Scottish Water has the resources to develop water resource plans covering each of its water treatment works. We do not consider that conducting these high level analyses should delay the delivery of the investment programme.

We concluded that the opportunity for synergy with the water treatment works programme and our allowance to address leakage justifies a significant reduction in the level of investment proposed by Scottish Water. We therefore accepted the lowest realistic cost identified in the Commissioner’s draft determination. In arriving at the lowest realistic cost, the Commissioner made a 20% reduction for over-scoping and took account of his allowance for leakage reduction. We would also suggest that £5 million of the total investment be spent on developing the water resource plans.

Security enhancement at water treatment sites

We reviewed the draft determination, the Reporter’s conclusions and the representations of Scottish Water. In our view the allowed for level of investment that the Commissioner included in his draft determination is broadly reasonable. We see no persuasive reason to change this allowance.

Customer requested lead pipes

We have not made any adjustment to the scope of Scottish Water’s proposals in this area.

Other minor elements

We have not adjusted (pre-efficiency) the level of investment that Scottish Water included in its investment plan.

Our allowed for level of investment to meet the ministerial objectives in improving water quality

Our allowed for level of investment to meet the ministerial objectives in improving water quality is shown in Table 27.

³⁹ Revised Table C figure.

⁴⁰ We discuss the scope for efficiency later in this chapter.

⁴¹ Scottish Executive Direction on Objectives 2006-10, 28 September 2005.

Table 27: Our allowed for level of investment to meet the ministerial objectives in improving water quality (pre-efficiency) (2003-04 prices)

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for spending
Water treatment works	£834.5m	£409.4m	£573.2m	£637.5m
Water mains rehabilitation (DW5 iron and manganese)	£25.4m	£0.0m	£0.0m	£0.0m
Water resources (Water Framework Directive)	£128.3m	£67.8m	£94.3m	£57.7m
Water treatment strategies	£0.0m	-	-	£5.0m
Security enhancement at water treatment sites	£76.6m	£61.1m	£61.1m	£61.3m
Customer requested lead pipe removal	£20.7m	£20.7m	£20.7m	£20.7m
Other minor elements	£30.3m	£30.2m	£30.2m	£30.3m
Quality & Standards II completion projects	£10.0m	£6.0m	£8.4m	£10.0m
Scottish Water reduction for 'Programme overlap'	-£51.8m	-£25.6m	-£35.9m	-£38.8m
Drinking water total	£1,074.0m	£569.6m	£752.0m	£783.6m

We note that our allowed for level of investment exceeds the highest estimated cost in the Commissioner's draft determination. **This is because we have taken full account of the DWQR's representations and significantly increased our allowance for investment in water treatment works.** We expect Scottish Water to deliver robust solutions to address the ministerial objectives. It is also worth re-iterating that **we have also allowed for additional operating costs such that the DWQR's concerns about operational practices can be effectively addressed.**

Environment

Unsatisfactory intermittent discharges (UIDs)

Scottish Water's revised Table C submission included the breakdown of UIDs shown in Table 28.

Table 28: Revised Table C – breakdown of UID programme (2003-04 prices)

UID class	Number of UIDs	Revised Table C cost	Average cost
Overflow UIDs	255	£566.3m	£2.22m
PPP UID schemes	3	£33.8m	£11.26m
Surface water outfalls	5	£4.4m	£0.87m
Dual manhole issues	14	£0.6m	£0.04m
Total	277	£605.0m	£2.18m

We looked at the experience of the companies south of the border to ensure that the proposed UID programme represents a reasonable challenge. We note that in the 'AMP3' investment programme for 2000-05, Ofwat allowed for investment at a total of 4,495 UID schemes⁴². This suggests an average of 450 schemes per company. Scottish Water would be a relatively large company south of the border. As such, its UID programme (comprising a total of 277 schemes) is relatively small compared with that which the companies south of the border have to deliver.

We have also sought to understand the mix of UIDs that Scottish Water has to deliver. We accept Scottish Water's representation that our allowance for addressing UIDs should take account of the mix of UIDs. We have analysed the overflow UIDs and the PPP UIDs in Scottish Water's programme by the three project driver categories that Scottish Water identified in its representations.

Table 29: Mix of overflow and PPP UIDs by driver (2003-04 prices)

UID type	Number of UIDs	Total cost Q&S3a	Average unit cost
Aesthetic	77	£41.4m	£0.54m
Inland water quality	118	£230.0m	£1.95m
Coastal water quality	63	£328.7m	£5.22m
Total	258	£600.1m	£2.33m

Our analysis, set out in Table 30, suggests that it would be reasonable to expect Scottish Water to deliver the identified UIDs for £172 million pre-efficiency. We assumed no reduction in Scottish Water's proposed investment in surface water outfalls and dual manholes (pre-efficiency).

⁴² From Ofwat's final determination 1999, page 114.

Table 30: Allowed for investment to address UIDs assuming 'AMP4' company investment plan unit costs (2003-04 prices)

UID type	Number of UIDs	AMP4 unit cost	Total
Aesthetic UIDs	77	£0.44m	£33.9m
Inland water quality UIDs	118	£0.44m	£51.9m
Coastal water quality UIDs	63	£1.29m	£81.5m
Surface water outfalls	5	-	£4.4m
Dual manhole issues	14	-	£0.6m
Total	277		£172.3m

We also analysed the information available on Scottish Water's UID project outturn costs during Quality and Standards II. **We believe that it would have been reasonable to use the Quality and Standards II unit costs for aesthetic and inland water UIDs and the 'AMP4' company investment plan unit cost for coastal water UIDs. We set out our analysis of the level of investment using this approach in Table 31. This suggests that we should have allowed for pre-efficiency investment of £177 million to ensure that Scottish Water can deliver the ministerial objectives.**

Table 31: Allowed for investment in UIDs using a combination of Quality and Standards II and 'AMP4' unit costs (2003-04 prices)

UID type	Number of UIDs	Allowed for unit cost	Total allowed for cost
Aesthetic UIDs	77	£0.19m	£14.8m
Inland water quality UIDs	118	£0.645m	£76.11m
Coastal water quality UIDs	63	£1.29m	£81.27m
Surface water outfalls	5	-	£4.4m
Dual manhole issues	14	-	£0.6m
Total	277		£177m

However, we also note that Scottish Water has identified that the cost for the three PPP UIDs, which we have now included in our assessment, are high. As such they may distort the average unit cost that would be observed in Scotland. In the light of this, we have concluded that a pre-efficiency allowance of £200 million should be at least sufficient to deliver the UID investment programme. In this regard, we note that even if we assumed that Scottish Water would indeed incur the full estimated cost of the three PPP UIDs, we would have allowed for an

average unit cost of £650,000 for all of the remaining UID projects. This is 46% more than Ofwat allowed the companies in England and Wales at 'AMP3'.

We note that both Scottish Water and the Scottish Environment Protection Agency (SEPA) welcomed the provision in the draft determination of an additional £6 million for drainage area studies. We are happy to retain this allowance and would note that the efficient delivery of the UID investment programme requires the completion of appropriate strategies. We understand that modelling is also likely to be required in Glasgow.

We are concerned by the suggestion that completing the necessary drainage area studies should delay the delivery of the ministerial objectives. Given the relatively small size of Scottish Water's UID programme in this regulatory control period, we do not believe that there is any justification for such a delay.

Sewage treatment works

We have noted the Reporter's comments on the costing of sewage treatment works. **The Reporter commented that Scottish Water had calculated the cost of building or up-grading sewage treatment works based on traditional solutions. The Reporter considered that Scottish Water could achieve savings if it used 'packaged plants' for small populations⁴³.**

Notwithstanding the comments of the Reporter, we have not made any reduction in the pre-efficiency allowance for investment in sewage treatment works. This is consistent with the approach taken in the draft determination.

We considered carefully Scottish Water's representations on the approach that we should take to the further investment that is required at PPP sites. In general we are concerned that so soon after the commissioning of these works significant additional investment not covered by the original contracts is required.

We accept the Commissioner's view that the investment in PPP sewage treatment works should be disallowed and transferred instead to a PPP operating cost allowance. We recognise that the contractors are not

⁴³ Packaged sewage plants comprise self-contained units which can be constructed with minimum on-site work. For small communities these offer lower-cost solutions than traditional sewage treatment works.

obliged to provide this investment, but given that we are allowing an attractive market rate of return⁴⁴ on this new investment, we can see no reason why the contracted consortia should not want to increase their profitability, nor why customers should pay more.

We agree with the Commissioner that it is unlikely to be practical for Scottish Water to own assets on the PPP contractor's sites. It will therefore be for Scottish Water to negotiate with the PPP contractor to ensure the delivery of the required outcomes. Again, we would be concerned if this were to be used as an excuse for delaying the delivery of the investment programme.

The transfer of the proposed investment at the PPP sewage treatment works to PPP operating costs reduces the allowed for investment at sewage treatment works from £109.1 million to £83.9 million. Similarly, the transfer of the Sludge Treatment Centre PPP project removes the proposed investment of £8.3 million from the capital investment programme.

We made no other changes (pre-efficiency) to the other elements of the investment programme required to meet the ministerial objectives for the environment. In this regard, we have again followed the approach that the Commissioner used in his draft determination.

Our allowed for investment to deliver the ministerial objectives for the environment

Our assessment of the lowest reasonable cost of delivering the ministerial objectives for the environment is shown in Table 32.

Table 32: Our allowed for investment to deliver the ministerial objectives for the environment (pre-efficiency) (2003-04 prices)

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for investment spend
UIDs	£605.0m	£126.0m	£252.4m	£200.0m
Study work	£0.0m	£6.0m	£6.0m	£6.0m
Sewage treatment work	£109.1m	£97.3m	£97.3m	£83.9m
Septic tank upgrade	£11.1m	£12.0m	£12.0m	£11.1m
Sludge treatment centre	£8.3m	£0.0m	£0.0m	£0.0m
IPPC schemes	£10.0m	£9.4m	£9.4m	£10.0m
Landfill Directive	£3.5m	£3.5m	£3.5m	£3.5m
Quality & Standards II completion projects	£2.3m	£2.8m	£2.8m	£2.3m
Other minor programme elements	£0.6m	£3.3m	£3.3m	£0.6m
Environmental total	£750.0m	£260.4m	£386.8m	£317.4m

Our allowed for level of investment is around the mid-point of the range that the Commissioner identified in his draft determination.

Customer service and the licensing framework

We made no change to the draft determination's allowances in this area. These were in line with those requested by Scottish Water. We retained the extra investment to facilitate the effective introduction of retail competition proposed in the draft determination.

In its revised Table C submission, Scottish Water separated its investment to address unplanned interruptions from its proposed capital maintenance.

We analysed this proposed investment. Scottish Water states that it needs £84 million to deliver this ministerial objective. We note that, based on Scottish Water's reported capital costs, this would be sufficient to replace 958km of water main. This is around 10% of the water mains in Scottish Water's north west region⁴⁵. We are concerned to note that the proposed investment amounts to nearly

⁴⁴ We assumed an allowed for return on equity of 18%.

⁴⁵ Scottish Water's June 2005 Annual Return, Table E, Line E6.8, gives the length of mains in the north west region as 9,970km.

£200,000 for every property that would no longer suffer from unplanned interruptions. This appears a wholly disproportionate level of investment to meet the ministerial objective.

To establish a more realistic estimate, we have calculated the average length of water main serving each property in the north west. There are 51.1 metres of water main for each connected property in that area⁴⁶. We assumed that, to achieve a reduction of 425 in the number of properties suffering an unplanned interruption, Scottish Water has to replace the entire length of water mains serving 4,250 properties (or 10 properties for each unplanned interruption removed). In our view, if Scottish Water targeted this investment at those properties that have suffered multiple interruptions in recent years then it is likely that our proposed allowance would prove to be generous. We calculate that Scottish Water should not have to replace more than 217km of mains⁴⁷ at an estimated cost of £18.5 million (pre-efficiency) to meet this objective. There may of course be other more cost-effective ways to deliver this objective.

Our allowed investment in this area is summarised in Table 33.

Table 33: Allowed for investment in improving customer service (2003-04 prices)

	Revised Table C	Our allowed for investment spend	Adjustment
Pressure management	£5.7m	£5.7m	No change
Odour management	£19.2m	£19.2m	No change
Business metering	£0.7m	£12.0m	Increased allowance in line with ministerial objectives
Sewer flooding	£60.2m	£60.2m	No change
Reduction in unplanned interruptions	£84.0m	£18.5m	Reduced allowance reflecting scope of work required
Introduction of competition	£0.0m	£15.7m	Not requested
Customer service and retail total	£169.8m	£131.3m	

Development constraints and first time provision

Development constraints

We considered carefully the Commissioner's approach to assessing the contribution towards reasonable cost that should be required from Scottish Water. In the light of our review, we have decided that we should adopt the same approach that the Commissioner used in his draft determination but that we should apply the discount rate of 3.75%⁴⁸ which is currently used by Ofwat. We maintained the proposed infrastructure charge at the same level as that assumed by the Commissioner in his draft determination⁴⁹.

We also noted that the Scottish Executive consultation proposes that a 'reasonable cost' contribution is made in respect of both 'Part 2' and 'Part 3' costs. We allowed for an additional £20 million to meet the likely need to make a reasonable cost contribution towards Part 2 costs. This increases our total allowance to £45.6 million. We would consider an interim determination in the event that the regulations relating to connection costs do not allow for infrastructure charging.

Scottish Water's representations questioned the scope of the reductions that the Commissioner applied to 'Part 4' strategic capacity investment and to water resources. We reviewed the justification for these reductions that was set out in the draft determination and concluded that it is reasonable to expect that the new reasonable cost regulations were likely to lead to improved locational signals and better targeting of development. As such, we believe that we should reduce the pre-efficiency allowance claimed by Scottish Water by 25%. This is consistent with the lower estimate in the Commissioner's draft determination.

Telemetry

In its revised Table C, Scottish Water claimed an additional £0.9 million (pre-efficiency) for telemetry costs associated with new development. We accepted this claim.

⁴⁶ Scottish Water's June 2005 Annual Return, Table E, Line E6.2 gives the number of connected properties in the north west as 195,000. Dividing this by the length of mains gives 51.1m/property.

⁴⁷ From multiplying 10 x 51.1 x 425 = 217km. The estimated cost is then 217km x £85 per metre = £18.5m.

⁴⁸ The Ofwat published rate is currently 6.25%. We have reduced this by 2.5% to take account of inflation.

⁴⁹ The draft determination assumed an infrastructure charge of £250 per property, per service.

First time provision

In its representations, Scottish Water suggested that this investment related principally to addressing the environmental priorities of SEPA.

Scottish Water has invested from £12,000 to £54,000 per property⁵⁰ to deliver the first time rural sewerage programme (termed 'WIC 16') during Quality and Standards II. Scottish Water proposes to invest just over £90,000 to connect each property during Quality and Standards III. Scottish Water argued that this increased cost is associated with the more demanding performance standards required at waste water treatment works during Quality and Standards III.

We reviewed Scottish Water's representations carefully. We are not persuaded it needs to incur the high costs included in both its second draft business plan and its representations. The Reporter commented that Scottish Water's approach is based on traditional solutions and that savings would be available from the use of 'packaged' sewage treatment plants in small communities. Such an approach is likely to be particularly effective where communities are being connected to the sewerage system for the first time. We are moreover concerned that Scottish Water's costs are so much higher than those incurred in Quality and Standards II. We have therefore concluded that an allocation of £50,000 per property should be sufficient to address the 806 properties identified. This gives a total pre-efficiency cost of £40.3 million.

Our allowed for level of investment to meet the ministerial objectives in alleviating development constraints and making first time connections

Our allowed for level of investment to meet the ministerial objectives in alleviating development constraints and making first time connections for rural communities is shown in Table 34.

Table 34: Investment allowed for growth and first time provision (2003-04 prices)

Growth and first time provision	Revised Table C	Our allowed for investment spend	Adjustment
Development constraints Part 2 & Part 3	£66.9m	£45.6m	Revised discount rate and allowance for 'Part 2' costs
Development constraints Part 4	£145.1m	£108.8m	25% reduction for scoping
Development constraints water resources	£10.7m	£8.0m	25% reduction for scoping
Telemetry	£0.9m	£0.9m	New allowance
First time provision Part 3	£40.5m	£40.3m	Combined allowance assuming Scottish Water pay full costs
First time provision Part 4	£30.0m		
Growth total	£294.0m	£203.5m	

The Q & S overhang and ESWA's 'unsubstantiated' efficiency

We have made no change to these elements of the draft determination.

Effective delivery

We believe that if Scottish Water is to deliver the ministerial objectives for Quality and Standards III within the framework of stable prices, there must be proper control of the capital programme and effective competition for the supply of capital goods. **On the basis of the information we have analysed during the Strategic Review, we have concerns about the nature of the responsibilities Scottish Water has delegated to Scottish Water Solutions (SWS). As such, we would be concerned were the present arrangement to be extended significantly beyond Quality and Standards II, without very careful consideration of the alternatives.**

Allowed for investment: Summary

We believe that our allowed for capital expenditure is consistent with the lowest reasonable overall cost of delivering ministerial objectives. It is important to emphasise that our allowed for level of operating costs and capital expenditure takes account of the likely scope for improved operational practice. **Improved performance in operating assets is likely to contribute towards reducing the incidence of water quality failures, environmental incidents and poor customer service. As such, it is important to consider our overall allowance for the costs of meeting the ministerial objectives, rather than either operating cost or capital expenditure in isolation.**

⁵⁰ Scottish Water's Representations, September 2005, Appendix X2.12, page 73.

Table 35 summarises our conclusions on the level of capital investment that we have allowed for in meeting the ministerial 'essential' and 'desirable' objectives for the industry in the 2006-10 regulatory control period.

Table 35: Summary of allowed for investment 2006-10 (2003-04 prices)

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for investment spend
Drinking water total	£1,074.0m	£569.6m	£752.0m	£783.6m
Environmental total	£750.0m	£260.4m	£386.8m	£317.4m
Customer service total (excluding retail)	£169.8m	£83.4m	£83.4m	£115.7m
Retail – Introduction of competition	£0.0m	£15.0m	£15.0m	£15.7m
Growth total	£294.0m	£184.7m	£214.9m	£203.5m
Total pre-efficiency enhancement investment	£2,287.8m	£1,113.1m	£1,452.2m	£1,435.9m
Cost base efficiency assumption	–	20.8%	15.4%	20.5%
Total post-efficiency enhancement investment	–	£891.3m	£1,237.5m	£1,151.1m
Capital maintenance total	£1,068.1m	£646.9m	£780.0m	£800.6m
Total post-efficiency new investment	–	£1,538.2m	£2,017.5m	£1,951.8m
Overhang	–	£253.0m	£253.0m	£252.6m
ESWA efficiency	–	-£54.9m	-£54.9m	-£55.7m
Total post-efficiency investment including overhang	–	£1,736.3m	£2,215.6m	£2,148.7m

Our conclusions on the allowed for level of capital expenditure have increased the annual cap on household bills in the 2006-10 regulatory control period by 0.2%. It has similarly increased the annual cap on non-household bills by 0.2%. It has reduced the unused borrowing by £40 million.

PPP and additional retail costs

We have adjusted PPP costs to reflect the latest available information, both about the base costs of the contracts and about the scope of additional work that may be required at each site. This is discussed in more detail above. Table 36 shows the allowance in the draft determination and the allowance we have made in this final determination.

Table 36: PPP operating costs in the draft and final determinations⁵¹ (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10	
Draft determination	Base Existing	£112.0m	£111.5m	£111.0m	£110.4m
	New	£0.9m	£0.9m	£2.8m	£6.0m
	TOTAL	£113.0m	£112.4m	£113.8m	£116.4m
Final determination	Base Existing	£113.0m	£112.6m	£112.2m	£111.7m
	New	£0.9m	£0.9m	£1.9m	£4.2m
	TOTAL	£113.9m	£113.5m	£114.0m	£115.9m

Our conclusions on the allowed for level of PPP operating costs have marginally increased the annual cap on household bills and non-household bills.

We have increased the allowed for operating costs in respect of the introduction of a framework for retail competition. Our allowance is divided between the wholesale and retail functions but we have not sought to specify the purpose of our allowances for either Scottish Water or its retail subsidiary.

Our allowances are set out in Table 37.

Table 37: Our allowances for additional retail operating (and other) costs resulting from the introduction of the competition framework (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10	Total
Draft determination	£3.9m	£2.4m	£1.9m	£1.4m	£9.7m
Final determination	£5.9m	£5.8m	£8.8m	£8.7m	£29.1m

Our conclusions on the allowed for level of additional retail operating costs has increased the annual cap on non-household bills in the 2006-10 regulatory control period by 0.2%. It has no material affect on the unused borrowing.

Provisional retail charge caps for 2010-14

We have set provisional charge caps for the period 2010-14. These charge caps would be slightly lower than RPI. The indicative charge caps are set out in Table 38.

⁵¹ Numbers may not add up due to rounding. The determination assumes that the cost of base existing PPP services is unchanged in the price base that applies to these contract projects. When the actual nominal outturns are converted to a 2003-04 price base using RPI, the allowed for amounts decline. This does not affect the actual cash allowed for to meet these costs.

Table 38: Provisional retail charge caps for 2010-14

	2010-11	2011-12	2012-13	2013-14
K factor ⁵²	-0.7%	-0.7%	-0.7%	-0.7%

These charge caps assume the following:

- Scottish Water achieves, but does not beat, its targets for the 2006-10 regulatory control period;
- an investment programme during the 2010-14 regulatory control period of £1,800 million in 2003-04 prices;
- capital inflation of 3%;
- there is no change in the key financial ratios; and
- public expenditure of £182 million a year is available.

The actual charge caps for 2010-14 will depend on Scottish Water's performance in the 2006-10 regulatory control period and on decisions of the Scottish Ministers with regard to their investment objectives and the level of public expenditure they are prepared to make available.

Conclusion

This final determination offers the prospect of falling charges in real terms for almost all customers. All household customers (with the exception of second home owners and some higher banded households who received transitional relief) will see their charges fall by more than 2% in real terms. Household bills in Scotland will, on average, be amongst the lowest in the UK. In reducing charges in real terms, we have not compromised the prospects for future charges, nor have we cut any corners with the delivery of all of the ministerial objectives for the industry.

It is also important to note that this draft determination funds an investment programme of nearly £2,150 million in 2003-04 prices. This is the largest investment programme in Great Britain on a per connected property basis and the second largest programme in absolute terms in the period to 2010. Only Thames Water, which has approximately twice as many customers as Scottish Water, has a larger investment programme. It is

⁵² Adjustment in tariff basket income relative to the rate of retail price inflation.

important to emphasise, however, that the larger companies south of the border have delivered programmes of a similar size on several occasions.

Customers in Scotland pay lower bills than would otherwise be necessary because Scottish Water has access to a lower public sector cost of capital. **Bills could be more than 6% higher if this public sector debt were not available. Customers are also beginning to benefit from the improvement in efficiency that Scottish Water has achieved in its first three years of operation. Over the next few years, if Scottish Water continues to improve its efficiency, customers in Scotland can continue to look forward to bills that are among the lowest in the UK.**

Final determination: Glossary of terms and definitions

Annual Return: The Annual Return is the largest single information request that we issue to Scottish Water each year. The format of the Annual Return is based closely on Ofwat's June Return. The Return provides detailed information about each area of the water and waste water business and all associated costs. It comprises more than 20,000 items of both input and calculated information.

Amortisation: An annual charge taken through the Income and Expenditure account to allow for the fall in value of an intangible asset. This is similar to depreciation, but for intangible assets.

Asset lifecycle: The period from when an asset is purchased to when it is decommissioned.

Benchmarking comparison: A method of comparing the performance of different companies. The leading performers in a given area are used as a standard or benchmark for the others.

Better Regulation Task Force: This independent body advises Government on action to ensure that regulation, and its enforcement, accord with the five Principles of Good Regulation. The Better Regulation Task Force has recommended that regulators adopt five principles of good regulation in their approach to price setting: proportionality, accountability, consistency, transparency and targeting.

BOD: Biological oxygen demand – a measure of the pollution potential of raw sewage and treated sewage effluent.

Business plan: A business plan is a company or organisation's statement of its strategy for the future. It should present clearly its forecast of revenue and costs. Scottish Water's two business plan submissions supplemented the information contained in the standard regulatory returns and set out its strategy and objectives for the coming period. The business plans formed a key element of the Strategic Review of Charges.

Capital asset pricing model (CAPM): An economic model used to provide an estimate of the expected rate of return on a financial investment, based on the riskiness of that investment.

Capital maintenance: Planned work carried out by Scottish Water to replace and repair water and sewerage assets to provide continuing services to customers.

Capital programmes: Planned construction work carried out by Scottish Water to build new assets such as sewage treatment works and water mains.

Cash flow statement: A summary of the cash flows in and out of a company over time.

Cash return on RCV: The RCV approach separates the cash cost of replacing assets (depreciation) from the financing and management costs. These financing costs and management costs are the cash return on the regulatory capital value.

Charge cap: A limit on the charges that Scottish Water can charge to customers.

Charge determination or determination: In relation to Scottish Water, a determination (made by the Water Industry Commission under section 29B of the 2002 Act (as amended by the 2005 Act)) as to the maximum amounts of charges by reference to which a charges scheme is to be made.

Charges scheme: Sets out Scottish Water's charging policy and charge levels for each financial year. It is subject to approval by the Commission.

Charging year: The year commencing on 1 April.

Codes of Practice: Scottish Water has an obligation to produce a Code of Practice under section 26 of the Water Industry (Scotland) Act 2002. The Code of Practice provides information on the standards of service that customers can expect and on how Scottish Water will deal with customers.

Competition Commission: An independent public body established by the Competition Act 1998. It conducts inquiries into mergers, markets and the regulation of major regulated industries. If a regulated company disputes the regulator's price limits, it can require the regulator to refer the determination to the Commission.

Common carriage: An approach to competition where competing suppliers put their water into the public supply network in order to supply their customers.

The Convenor: The Convenor of the Customer Panels, a role established by the Water Industry (Scotland) 2002 Act. The Convenor is the head of the five Water Customer Consultation Panels.

COPI: Construction Output Price Index. The rate of inflation for a basket of construction prices over a period of time.

Cost base: A set of standard capital unit costs, designed to reflect the actual work to be carried out by Scottish Water. These can be benchmarked in order to assess a procurement efficiency gap.

Comparative analysis: The use of a number of different organisations' performance in a given area to assess relative performance of an individual organisation.

Comparator company: A company used as a benchmark, against which Scottish Water's performance is assessed.

Core activities: Scottish Water's primary role is to provide water and waste water services to customers. The Water Industry (Scotland) Act 2002 limits our remit to promoting the interests of customers to the core business.

Cost-reflective pricing: Where charges are based on the cost to the service provider of actually providing that service to a customer.

Council Tax bands: Bands defining the upper and lower limit for the value of a domestic property. Each property falls into a band from A to H. The band is used as a basis for setting the level of Council Tax and water charges paid by domestic customers.

Cross-subsidy: The subsidisation of a particular customer group by another group. The former pays less than the actual cost of providing the service and the latter pays more.

Current cost accounting: A method of accounting originally designed to deal with the problem of showing the effect of inflation on business profits. Instead of showing assets at their historic cost (ie their original purchase), less depreciation where appropriate, the assets are shown at their current cost (replacement cost) at the time of producing the accounts.

Customer retained earnings: Scottish Water generates surpluses and therefore has retained earnings, which it can invest to achieve the outputs set by Scottish Ministers. These reinvested surpluses have essentially the same properties as retained earnings in the private sector (a form of equity), except that they are reinvested for the benefit of customers, rather than with the specific aim of generating increased future profits. In considering this source of funds for Scottish Water we refer to 'customer retained earnings'.

Debt: Borrowings used to finance a company's functions. Scottish Water currently borrows from the Scottish Consolidated Fund at public sector borrowing rates.

Debt premium: The debt premium is that part of an interest rate that represents the corporate risk of the debt instrument above the risk-free rate. Investors therefore require the premium to compensate them for the additional risk of the debt instrument over government securities.

Depreciation: Depreciation is a measure of the consumption, use or wearing out of an asset over the period of its useful life.

Drinking Water Quality Regulator (DWQR): The DWQR was established by the Water Industry (Scotland) Act 2002. The DWQR provides an independent check that Scottish Water is complying with the drinking water quality regulations. These regulations reflect European Union and other statutory standards.

Econometric modeling: The use of regression and other statistical techniques to model the relationships that underlie economic and financial results.

Economic level of leakage: The level of leakage at which further leakage control activity would cost more than alternative means to bridge the gap between supply and demand.

Economies of scale: Means that the average cost of producing one unit of output falls as the volume of production increases. This could happen because a cost that changes very little with output, such as the cost of running an accounts department, is shared among a greater amount of output.

Economies of scope: Means that it is cheaper to produce two (or more) products together, rather than to produce them separately. For example, the production of timber planks also results in the production of sawdust.

Efficiency: Achieving the same or better outputs for lower expenditure.

Eligible customers: Occupiers of premises that are (or are to be) connected to the public water supply system and/or the public sewerage system, but which are not defined as a dwelling.

Embedded debt: Debt, due in more than one year, in company balance sheets which attracts a fixed rate of interest rather than a floating rate.

Equity: The net worth of a firm. Equity is usually shares, preference shares and retained earnings.

Financial model: A computer model that uses historical financial data together with a series of assumptions and scenarios to predict the future incomes and expenditures (and hence the revenue requirement) of Scottish Water.

Gearing: A company's net debt expressed as a percentage of its total capital (ie the ratio of net debt to net debt plus equity expressed as a percentage).

Guaranteed Minimum Standards: The minimum standards of service that Scottish Water must meet, and which customers have a right to expect. Failure to

comply with any of the standards entitles the customer to financial compensation.

Historic Cost Accounting: The traditional form of accounting, in which assets are shown in balance sheets at their cost to the organisation (historic cost), less any appropriate depreciation.

Household properties: Properties used as single household dwellings (normally occupied), receiving water and/or sewerage services for domestic purposes only.

Income and Expenditure account: Also known as a Profit and Loss account. The accounting statement where a company records its earnings and expenses in each year and calculates its net and gross profit.

Infrastructure assets: Mainly underground assets, such as water mains and sewers and also lochs, dams and reservoirs. A distinction is drawn between infrastructure and non-infrastructure assets because of the way in which the assets are managed, operated and maintained.

Infrastructure renewals charge: An annual accounting provision for expenditure on the renewal of infrastructure assets charged to the Income and Expenditure account.

Interest: An annual payment on debt aimed at compensating an investor for the risk and opportunity cost of an investment.

Interest cover: The number of times a company's profits, before interest and tax, cover interest due on all its borrowings.

Interim determination: In relation to Scottish Water, a review (carried out by the Water Industry Commission under section 29F of the 2002 Act (as amended by the 2005 Act)) of the maximum amounts determined under section 29B of the 2002 Act (as so amended).

June Return: See Annual Return.

Key Performance Indicators (KPIs): A set of financial ratios used to measure financial sustainability.

London Inter Bank Offered Rate (LIBOR): The rate at which banks lend to each other.

Licence holder: A person to whom a licence has been granted.

Licensee: A person to whom a licence has been granted.

Licensing authority: A body authorised by law to grant licences.

Load: A measure of strength and quantity of waste water, usually expressed in Kg BOD per day.

Logging up and down: An adjustment that takes place at the end of the regulatory control period to reflect differences in cost from the original determination. Such differences will have an impact on prices only in the next regulatory control period.

MEAV: Modern equivalent asset value. The value of assets if they were replaced efficiently with the latest technology.

Megalitre: One million litres, or 1,000 cubic metres.

Ministerial Guidance: Ministers' proposals, published in February 2005, for a statement to be made under section 29D of the 2002 Act (as amended by the 2005 Act) and for a set of directions to be made under section 56A of the 2002 Act (as so amended).

MI/day: One megalitre per day.

Modified historic cost: A basis for valuing assets by increasing the asset cost by inflation each year to represent a more realistic cost level.

Monopoly: When only one company sells a product that has no close substitutes, it faces no competition in the market. The customer who wants to buy the product has no choice of supplier.

Net present value: The economic value of a project, at today's prices, calculated by netting off its discounted cash flow from revenues and costs over its full life.

Network: The physical assets downstream of production and bulk storage facilities owned by Scottish Water which are essential for the supply of water to customers up to the boundary stopcock of customer premises.

Network operator: The company responsible for operating and maintaining a utility network.

Non-core business: Anything other than core business, for example consultancy services, plumbing, recreation, farming and waste management.

Non-household properties: Properties receiving water and/or sewerage services that are used exclusively for public, business, trade or manufacturing purposes, or household dwellings used for commercial purposes.

Non-infrastructure assets: Mainly above-ground surface assets, such as water and sewage treatment works, pumping stations and company laboratories, depots, workshops and equipment.

Overall performance assessment (OPA): Combines results for customer service measures with information about performance in drinking water quality and environmental compliance to derive an overall score for the level of service.

Operating expenditure: Comprises day-to-day running costs such as employment costs, electricity, materials, hired and contracted costs, local authority rates, insurance, and vehicle running costs.

Panel data: Performance information collected over a number of years.

PFI: Private Finance Initiative, precursor to Public Private Partnership.

Population equivalent of sewage treatment works:

The capacity of sewage treatment works is measured in terms of the amount of organic material that can be treated. It is assumed that one person is equivalent to a load of 60g of BOD. This measure includes industrial waste water treated at works.

Public Private Partnership (PPP): The three former water authorities decided to let a total of nine concessions for the building and operation of waste water treatment plants. These concessions were for a period of 25-40 years. The concessions were usually let to joint venture companies which usually consisted of a consultant engineering and design firm, a construction contractor and an operations company.

Quality and Standards (Q & S): The standards set by the Scottish Executive, the Scottish Environment Protection Agency and the Drinking Water Quality Regulator to ensure that Scotland receives safer drinking water and a cleaner environment. The standards are determined largely by the policies of the Scottish Ministers, which are underpinned by standards agreed with the European Union. The Quality and Standards process sets out the environmental and drinking water standards that Scottish Water must meet and estimates the investment that is required to meet them.

Rate of Return: The annual income and capital growth from an investment, expressed as a percentage of the original investment.

Regulatory accounts: A set of accounting statements produced by a regulated company to rules set by the regulator. These ensure that costs and revenues from regulated activities are properly recognised.

Regulatory capital value (RCV): The capital base used in setting charge limits. The value of the regulated business on which Scottish Water can earn a return.

Regulatory information: Financial, customer and engineering data collected by the regulator for monitoring, benchmarking and financial analysis.

Reporter: The Reporter is an independent auditor who reviews most aspects of Scottish Water's information submissions. This includes auditing both Scottish Water's Annual Return and its business plan submissions, as well as scrutinising the costing, scope and content of the proposed investment programme.

Retail activities: Retail is the selling of goods or services directly to consumers.

Retail price index (RPI): The rate of inflation for a basket of retail prices over a period of time.

RPI-X regulation: A form of regulation that involves setting price caps that are measured relative to the RPI. All of the UK economic regulators have used price cap (RPI-X) regulation to limit the prices that companies are allowed to charge their customers.

Retail subsidiary of Scottish Water: The undertaking that will be established by Scottish Water in compliance with section 12 of the Water Services etc. (Scotland) Act 2005, to perform the activities of a licensed retail entity.

Revenue: The total amount of money that Scottish Water collects (from customers) in a year.

Scottish Executive: The devolved Government in Scotland and their civil service support.

Scottish Environment Protection Agency (SEPA): SEPA is responsible for a range of activities, including regulating discharges to rivers, lochs, estuaries and coastal waters and for protecting and improving the water environment, including River Basin Management Planning under the Water Environment and Water Services Act 2003.

Section 29D statement: A statement of policy regarding charges made by Ministers under new section 29D of the 2002 Act (as inserted by the 2005 Act).

Section 56A directions: Directions given to Scottish Water by Ministers by reference to new section 56A of the 2002 Act (as inserted by the 2005 Act).

Special factors: Factors taken into account when setting Scottish Water's operating expenditure targets.

Spend to save: Spend to save expenditure is spending now to save money later, for example redundancy payments now to reduce wage bills in the future.

Standard customers: A set of representative 'typical customers' who are defined by aspects such as their consumption, connection size and rateable value. We can calculate the impact of tariff changes on the bills for each of these 'typical customers'. Customers can then match the service they receive with the standard customer who is most similar to themselves, allowing them to understand the likely impact on their bills of changes in tariffs.

Supply/demand balance: The balance between the amount of a company's available water resource and the demand for water by customers. Any imbalance between supply and demand can be met via resource enhancement or demand management strategies (eg selective metering and leakage control).

Surface water drainage charge: The part of the waste water charge that covers the cost of removing and cleaning impurities and pollution from rainwater from roofs and private lands, as well as from roads and other public areas.

Tariff basket: Includes all of the tariffs that impact on customers who receive a particular service. For example, if measured non-household water customers were considered as a group, all of the tariffs that impact on them would be included.

Ten principles: These principles were agreed between Scottish Water, the Scottish Executive and this Office in 2003. The principles set out a range of measures to improve information flows and clarify both Scottish Water's efficiency targets and the nature and scope of any adjustments that are made for the purposes of comparison.

Trade effluent: Industrial waste water other than that produced through normal domestic systems such as sinks and toilets.

Unsatisfactory intermittent discharges (UIDs): At times of heavy storms, some sewers are designed to overflow into water courses, as are storm water retention tanks at sewage treatment works. Where this results in unacceptable levels of discharge into water courses, these discharges are deemed by SEPA to be unsatisfactory.

Value chain: The different activities that occur one after another, and which must be carried out in order to provide customers with water and waste water services.

Water Customer Consultation Panels: Established by the Water Industry (Scotland) Act 2002, to represent the views and interests of customers served by the public sector water industry in Scotland.

The Water Industry Commission: A body established by the Water Services etc. (Scotland) Act 2005 to replace the Commissioner as the party responsible for economic and customer service regulation of the public sector water industry in Scotland.

The Water Industry Commissioner for Scotland (WICS): A role established by the Water Services Act 1999 to carry out economic and customer service regulation for the public sector water industry in Scotland. The Commissioner has now been replaced by the Commission.

Water Industry (Scotland) Act (2002) or the 2002 Act: The Water Industry (Scotland) Act 2002 (2002 asp 3).

Water Services etc. (Scotland) Act (2005) or the 2005 Act: The Water Services etc. (Scotland) Act 2005 (2005 asp 3).

Weighted average cost of capital (WACC): The weighted average cost of capital combines the rate of return from debt and from equity relative to the share of each in the market value of the firm.

Wholesale activities: Wholesale is the selling of goods or services to merchants, usually in large quantities and for resale to consumers.

Wholesale services agreement: An agreement between Scottish Water and a licensed retailer, setting out the terms and conditions for the supply of wholesale services, as required by section 14 of the Water Services etc. (Scotland) Act 2005.

Section 1:

Introduction and background

Chapter 1: Introduction

The final determination of charge caps

This document sets out our final determination of charge caps for the 2006-10 regulatory control period.

These charge caps will allow Scottish Water to achieve all of the 'essential' and 'desirable' investment objectives of Scottish Ministers for the water industry for the regulatory control period 2006-10. They take effect from April 2006.

In coming to our decisions, we have considered the representations received from stakeholders on the draft determination published by the Water Industry Commissioner for Scotland in June 2005¹. All of them are available on our website (www.watercommission.co.uk).

Under the Water Services etc. (Scotland) Act 2005, we are required to determine the maximum level of charges that Scottish Water should be allowed to levy on its customers for core services². This is the first time that the water industry regulator has determined, rather than advised Ministers on, the appropriate level of charges.

Our work is set within a policy framework that has been established by the Scottish Ministers. Ministers have been responsible for setting Scottish Water's objectives and for the principles that should apply in setting Scottish Water's charges. We have, however, operated independently of Ministers to identify the lowest overall reasonable cost at which their objectives can be met, and have set charges on that basis.

The role of the Competition Commission

Scottish Water has the right to appeal against the charge caps that are set out in this final determination. It can require us to refer this determination to the Competition Commission within 60 days of publication.

The Competition Commission would then have to decide whether the lowest reasonable overall cost of delivering

the ministerial objectives is equal to, higher or lower than we have set in this final determination. The Competition Commission would take into account the same issues that we have taken into account.

The Competition Commission's conclusions are binding, subject to judicial review by the Courts. Until the Competition Commission makes its decision, the charge caps set out in this final determination will stand. In practice, this means that a referral to the Competition Commission could not impact on customer charges in 2006-07.

Structure of the final determination

The determination is presented in seven sections.

- Section 1 outlines the background to the final determination and the legislative and regulatory framework.
- Section 2 covers issues relating to the initial level of revenue to which we apply our charge caps. It also sets out our assumptions with regard to changes in the customer base.
- Section 3 explains our decisions on the level of Scottish Water's operating costs that we have allowed for.
- Section 4 sets out our view on the level of capital expenditure that is required to meet in full the Ministers' objectives for the water industry in Scotland (given our allowed for level of operating costs).
- Section 5 covers the financing of the required capital programme.
- Section 6 describes the incentive and governance framework that will apply during the 2006-10 regulatory control period.

¹ Water Industry Commissioner for Scotland, *The Strategic Review of Charges 2006-10: The draft determination*, Volumes 1-7, June 2005.

² The distinction between core and non-core activities is discussed in Chapter 8 of Volume 4 of the draft determination.

In each of Sections 2 to 6, we summarise the conclusions of the Water Industry Commissioner for Scotland in his draft determination, and discuss new information that has become available since the draft determination was published. We then summarise the representations we have received on the issues, including those of Scottish Water. Finally we set out our conclusions.

Section 7 sets out the charge caps that we have determined and provides an outline of how the charge caps are likely to impact on customers.

Chapter 2: Background

Introduction

In this final determination, we, the new Water Industry Commission for Scotland (new Commission) set out our view of the charge caps that should apply for the 2006-10 regulatory control period.

The publication of this final determination will conclude the Strategic Review of Charges 2006-10 unless Scottish Water exercises its right to require us to refer our determination to the Competition Commission. The Water Services etc. (Scotland) Act 2005 significantly strengthened the framework for the regulation of the water industry in Scotland. This chapter provides an overview of these changes and outlines how they have influenced this Strategic Review.

The former regulatory framework – the Water Industry (Scotland) Act 2002

The Strategic Review of Charges 2006-10 was commissioned by the Minister for Environment and Rural Development, Ross Finnie MSP, in May 2004. At that time, the statutory duty of the Water Industry Commissioner, and the process by which a Strategic Review of Charges should be undertaken, was set out in the Water Industry (Scotland) Act 2002.

Under section 33 of the 2002 Act, the Water Industry Commissioner had, when required by Ministers, to advise them on the matters to be taken into account by Scottish Water in fixing charges in charging schemes. In preparing this advice (which was to apply in relation to charges schemes made during such a period as Ministers specified), the Commissioner had to have regard (in addition to guidance and directions from the Scottish Ministers) to such matters as (a) the economy, efficiency and effectiveness with which Scottish Water was using its resources in exercising its core functions, (b) the likely cost to Scottish Water, for the period of the advice, of exercising such functions at the standard or level specified by Ministers and (c) the likely resources, other than income from charges for goods and services, available to Scottish Water for the period of the advice.

Ministers had, within three months of receiving this advice from the Commissioner, either to accept the advice, with or without modifications, or reject the advice and substitute their own advice for it. The Commissioner had to publish the advice as accepted, modified or substituted, together with the reasons given by Ministers for any modification or rejection.

When Scottish Water made a charges scheme and when the Commissioner and, if necessary, Ministers considered whether to approve such a scheme, each had, under section 31 of the 2002 Act, to have regard to any advice published under section 33 in force at the time of making the scheme.

The Strategic Review of Charges 2002-06 was completed using this process – under instruction from Ministers, the Commissioner provided Ministers with advice as to the appropriate level of funding for Scottish Water. This advice was accepted and then published by the Commissioner. For each year of the regulatory control period, the Commissioner had to approve or reject Scottish Water's proposed charges scheme. In the event that the Commissioner considered that the proposed scheme of charges was not consistent with the section 33 advice, he had to refer the proposed scheme of charges to the Scottish Ministers.

The Strategic Review of Charges 2006-10 was commissioned in the same way, with an instruction from Ministers. However, at the time that this Review was commissioned, the Scottish Executive had announced an intention to strengthen the regulatory framework for the water industry in Scotland. Scottish Ministers proposed significant changes to the regulatory framework which had a direct impact on the Strategic Review of Charges 2006-10. The commissioning letter noted that while the Review was commissioned under the provisions of the 2002 Act, it would – contingent on the proposals of the Scottish Ministers being approved by the Parliament – be completed under a new legislative framework.

Changes to the framework – Water Services etc. (Scotland) Act 2005

The Water Services etc. (Scotland) Bill received Royal Assent in March 2005. The Act has two main functions.

- It created a Water Industry Commission for Scotland to replace the Water Industry Commissioner for Scotland.
- It introduced a framework for competition in the water industry that was consistent with the social, environmental and public health objectives of the Scottish Ministers.

We focus on the first of these functions in this chapter. We have recently published a detailed consultation on our proposals for the licensing framework¹.

Creation of a Water Industry Commission for Scotland

The Act created the Water Industry Commission for Scotland. We are required to establish the lowest reasonable overall cost of delivering the objectives of the Scottish Ministers for the water and sewerage industry in Scotland. We have set charge caps that are consistent with its assessment of the lowest reasonable overall cost. This contrasts with the duty of the former Water Industry Commissioner to provide advice on the level of charges required.

Section 21 of the 2005 Act repealed sections 31 and 33 of the 2002 Act, whereby the Commissioner had to provide Ministers with advice on the factors to be taken into account in setting Scottish Water's charges. It also inserted a number of new provisions into the 2002 Act. These provisions established a new legal framework under which Scottish Water levies charges on its customers. These are considered below.

Under section 29A of the 2002 Act, Scottish Water must in future make a charges scheme by reference to a determination we make under section 29B. In particular, Scottish Water's charges schemes may not fix charges

in excess of any maximum set by virtue of the determination.

Section 29B of the Act requires us to determine maximum amounts of charges. The charges scheme should be made by reference to these maximum amounts of charges. Further, these maximum amounts should apply in relation to such a period as Scottish Ministers may specify. We are required to publish a draft determination on which we must consult prior to taking our final decision.

In essence, we must, pursuant to section 29C²:

- a) exercise our function to make such determinations for the purpose of ensuring that (so far as is consistent with compliance with point b) below) charges schemes give effect to any statement of policy regarding charges made by Ministers under section 29D;
- b) exercise those functions for the purpose of ensuring that (so far as is consistent with Scottish Water complying with its statutory obligation to secure that its annual income is not less than its annual expenditure). Scottish Water's receipts from (i) its income from charges for services provided in the exercise of its core functions and (ii) any grants made, sums borrowed or any other resources reasonably available to it for the purposes of the exercise of those functions, are not less than sufficient to meet the expenditure required for the effective exercise of those functions; and
- c) in exercising those functions, have regard to any guidance issued to Scottish Water by Ministers and any directions given to Scottish Water under section 44 or 56 of the 2002 Act, so far as relevant in relation to charges schemes.

Section 29G of the 2002 Act provides that, in relation to point b) above, Scottish Water is to be taken to be exercising its core functions effectively if (in discharging its statutory duties and contractual obligations relating to the exercise of those functions) it makes such use of its resources year on year, and it achieves at the lowest reasonable overall cost the objectives contained in any

¹ *The licensing regime under the Water Services etc. (Scotland) Act 2005: A consultation paper*, available on our website www.watercommission.co.uk
² See Appendix 5 for the full statutory provision.

directions given by reference to new section 56A of the 2002 Act.

We may also review the maximum charges set under a determination by virtue of section 29F of the 2002 Act where, since the determination was made, there has been or is likely to be a material change in the income available to Scottish Water or expenditure required for the effective exercise of its core functions. A review of this sort might result in the revision of the maximum charge level set in the determination.

An important component of the new framework is that Scottish Water will have the right (to be introduced by a statutory instrument made under the Scotland Act 1998) to require us to make a reference to the Competition Commission in respect of our determination.

Once we have set maximum limits for Scottish Water's charges, Scottish Water will be required to propose a detailed charges scheme. The scheme must adhere to the maximum charges set out in our determination. It is expected that Scottish Water will be asked to propose charges schemes on an annual basis. If we do not agree the charges scheme proposed by Scottish Water, we have the power to implement a charges scheme of our own design.

Implementing the Water Services etc. (Scotland) Act 2005

Ministers' proposals to strengthen the regulatory framework had a significant impact on this Strategic Review.

- Prior to the final determination, the Commissioner published a draft determination of charges.
- We adopted the Commissioner's draft determination and sought representations from stakeholders on this draft.
- Stakeholders had 12 weeks to make their representations.
- This final determination sets household and non-

household retail charge caps. It also sets a provisional wholesale charge cap.

We consider each of these stages below.

The draft determination

In June 2005, the former Water Industry Commissioner published a draft determination of charges. In line with the commissioning letter for the Strategic Review of Charges 2006-10, the Commissioner had drawn conclusions on the level of charges required by Scottish Water to meet the objectives set by Ministers. His conclusions were in the form of a draft determination of charges.

The key messages from the draft determination were as follows.

- The proposed charge caps would allow all of the 'essential' and 'desirable' objectives of Scottish Ministers to be met.
- The total allowed for investment programme during the 2006-10 regulatory control period was £2.1 billion (in 2003-04 prices). This was the largest programme of investment in Scotland's water industry in recent times.
- Notwithstanding this significant increase in the level of investment, the vast majority of households would see their bills increase by 2% in 2006-07 and 2007-08. There would be no increase in 2008-09 and 2009-10. This amounted to a reduction of over 6% in real terms³.
- Most non-household bills would fall by 2.1% in 2008-09. There would be no change in other years of the regulatory control period. This amounted to a reduction of some 11% in real terms.
- In line with the Ministerial Guidance on the principles of charging:
 - a new 25% discount for households in receipt of Council Tax was allowed for;

³ Restated to reflect position relative to the retail price index.

- the discount for second home owners was removed.
- £44 million of cross-subsidy from non-household to household customers was unwound; and the discount for second home owners was removed.
- If Scottish Water were to perform in line with the draft determination, it would comply with all of the cash-based financial ratios used by Ofwat to measure the financial strength of the water and sewerage industry south of the border.
- By 2009-10, average household bills (at £303) would be the third lowest in the UK.

Water Industry Commission for Scotland

The Water Industry Commission for Scotland was formed on 1 July 2005. The Office of the Water Industry Commissioner for Scotland was dissolved at that time.

The Commission comprises a non-executive Chairman and four other non-executive members. The Chief Executive is also a member of the Commission.

- **Sir Ian Byatt, Chairman of the Commission**, was Director General of the Office of Water Services between 1989 and 2000. In that role, he was responsible for the independent economic regulation of privatised water companies in England and Wales. From 1978 to 1989 he served in HM Treasury as Deputy Chief Economic Adviser. Since 2000 he has advised the World Bank and governments around the world on matters relating to the water industry. Sir Ian acted as an adviser to the former Water Industry Commissioner for Scotland since 2002.
- **Professor David Simpson, Deputy Chairman of the Commission**, was Economic Adviser to Standard Life from 1988 to 2001. He was the founding Director of the Fraser of Allander Institute at the University of Strathclyde and is a Trustee of the David Hume Institute. Professor Simpson acted as an adviser to the former Water Industry Commissioner for Scotland since 2002.

- **Professor John Banyard** is a chartered engineer who recently retired as an Executive Director of Severn Trent Plc following a career in the water industry. His particular area of responsibility was the design and management of the capital programme and the day-to-day operation of the company's infrastructure. He also acted as an adviser to the Water Industry Commissioner for Scotland from January 2005.
- **Dr Michael Brooker** is a scientist who recently retired as Chief Executive of Welsh Water following a career in the water industry in Wales. During his career he was Chief Scientist and subsequently Divisional Operations Director of Welsh Water before becoming Managing Director in 1996.
- **Charles Coulthard** retired recently as Managing Director of Ofgem (the Gas and Electricity regulator) in Scotland. He served as Deputy Director of the Office for the Regulation of Electricity and Gas in Northern Ireland between 1992 and 1999. He is also currently the Chair of the Gas and Electricity Consumers Council in Scotland.
- **Alan Sutherland, Chief Executive of the Commission**, was the Water Industry Commissioner since the creation of the position in November 1999. During that time he developed a framework for economic regulation of Scottish Water.

The formation of a Commission with the power to determine charge caps, within a policy framework set by Ministers, will ensure that authority and responsibility are aligned.

We have taken careful account of the representations on the draft determination received from stakeholders.

Opportunity for representations on the draft determination

An important requirement of the 2005 Act was that we had to produce a draft determination prior to reaching our final conclusions. For this purpose, we adopted the draft determination prepared by the former Water

Industry Commissioner for Scotland. The consultation period ran for 12 weeks between 1 July and 23 September 2005. This consultation period provided stakeholders and customers with an opportunity to engage with and influence the outcome of the Strategic Review of Charges 2006-10.

In order to encourage as many stakeholders and customers as possible to make representations, there were:

- **Stakeholder information days** – during preparation of the draft determination, the Commissioner held seven stakeholder information days between June 2004 and May 2005. These meetings were designed to provide information on the Review's progress, and discuss relevant issues. The Commissioner invited a representative cross-section of stakeholders to attend.

The Commissioner held a further stakeholder information day on 30 June 2005, the day the draft determination was published. We also arranged stakeholder information days on 5 August, 16 September, 31 October and 30 November 2005.

- **Further discussions with key stakeholders** – Following publication of the draft determination, we held discussions with the Scottish Environment Protection Agency (SEPA), the Water Customer Consultation Panels (WCCP) and the Drinking Water Quality Regulator (DWQR), to ensure that it had fully understood the views of these organisations on the draft determination.
- **A 'special factors' workshop for Scottish Water**⁴ – on 10 August 2005, we held a special factors workshop for Scottish Water. This meeting provided us with the opportunity to explain further the rationale behind the former Water Industry Commissioner's decisions to accept, modify or reject the special factors claims that Scottish Water had made in its first and second draft business plans. It also allowed Scottish Water

to ask questions regarding the former Commissioner's decisions ahead of its representations on the draft determination.

- **Oral presentation of its representations by Scottish Water** – in addition to submitting a written representation on the draft determination, Scottish Water also presented its views on the draft determination to us.

The final determination of charges for 2006-10

In line with its statutory duty under the 2005 Act, we have completed this final determination of charges for the 2006-10 regulatory control period.

Scottish Ministers have set their objectives for the industry in Directions dated 28 September 2005. These Directions included both their objectives for investment and their decisions on the principles of charging that should underpin the final determination.

This final determination seeks to establish the lowest reasonable overall cost for Scottish Water to deliver the ministerial objectives. It takes into account and addresses representations made by Scottish Water and other stakeholders following the draft determination.

A specific requirement of the original commissioning letter was that 'charge limits' as opposed to a 'revenue cap' were set. By using charge caps, the scope for Scottish Water to alter the balance of revenue between customer groups is limited.

This determination sets household and non-household retail charge caps⁵. However, in line with the introduction of a framework for competition in retail water and sewerage services, the final determination also sets out a provisional wholesale charge cap. This cap takes into account the information provided in Scottish Water's regulatory accounts and its second draft business plan. We have asked for a detailed business plan from Scottish Water on its plans for its retail water and sewerage operation. We intend to set final wholesale

⁴ Special factors are those factors that can influence an organisation's costs, but are not reflected in the econometric models that we use to benchmark Scottish Water's performance. Ahead of the draft determination, we asked Scottish Water to submit its views on the special factors that we should take account of (by adjusting the results of our benchmarking) in a formal submission accompanying its second draft business plan. As part of the review process, we assessed these claims against a series of criteria. The claims were either rejected, modified or accepted as appropriate.

⁵ Similar views have been debated before the Competition Appeal Tribunal in for example the appeal by Albion Water (Case 1034/2/4/04, judgement pending).

charge caps when the asset transfer from Scottish Water to its retail subsidiary has been confirmed by Scottish Ministers.

Summary

This final determination sets out the charge caps that we believe are required by Scottish Water to deliver both the 'essential' and 'desirable' objectives of Scottish Ministers for the water industry in Scotland.

This Strategic Review has been prepared at a time when the regulatory framework was in the process of being strengthened. Since the Review was commissioned, the Water Services etc. (Scotland) Act 2005 has been passed. This Act, among other things, provides for charge limits to be determined by a new body corporate, the Water Industry Commission. The Scottish Ministers will no longer take decisions on the appropriate level of charges.

The charge caps detailed within this determination are consistent with our, the new Commission's, views on the lowest reasonable overall cost for Scottish Water to deliver the ministerial objectives for the industry. These objectives were set out in Directions published by Ministers on 28 September 2005.

Under the framework established by the 2005 Act, Scottish Water may require us to refer its final determination to the Competition Commission. The Competition Commission would have to decide whether the reasonable overall cost of delivering the ministerial objectives is equal to, higher or lower than that allowed for in this final determination. As such, it could increase or decrease charges to customers, or leave them the same.

Section 2:

Customer revenue base

Chapter 3: Introduction

Introduction

In this Strategic Review of Charges and in line with the new regulatory framework, we have determined a series of charge caps rather than a general cap on revenue. A charge cap largely insulates customers from the impact of changes in the customer base or volumes of consumption during a regulatory control period.

We establish tariff baskets to cover the core services that Scottish Water provides to customers. We then translate the revenue that Scottish Water requires into a series of charge caps for each of the tariff baskets. The charge cap is the weighted average increase in tariffs within a basket. It is therefore the maximum amount by which tariffs on average can increase within a tariff basket.

Our use of tariff baskets helps us to ensure that the principles of charging determined by Scottish Ministers are applied in a transparent way. The tariff basket charge caps should also allow most customers to have a broad understanding of the likely level of their bill in each year of the regulatory control period.

In setting charge caps, we assess the revenue from an individual tariff basket by calculating the sum product of the customer base and the tariffs that apply. In order for us to carry out this analysis, we rely on good information about Scottish Water's total revenue base (that is, the mix of customers and services provided at an aggregate level), and about the detailed make-up of the customer base and the services it receives.

We must also ensure that our assumptions on changes in the customer base are consistent with the allowances for investment that we have made elsewhere in this Review.

Structure of this section

In this section, we explain how we have determined the baseline level of revenue to which charge caps should apply. We also set out our views on the changes to the customer base that we expect to see.

- Chapter 3 is this introduction.
- Chapter 4 summarises the conclusions of the Water Industry Commissioner for Scotland in his draft determination in relation to the customer base.
- Chapter 5 outlines new information that has become available since the draft determination was published.
- Chapter 6 summarises Scottish Water's representations on the draft determination's conclusions on the customer base.
- Chapter 7 summarises the representations from other stakeholders.
- Chapter 8 outlines our conclusions following our review of the draft determination's consideration of the customer base and the representations made by stakeholders.

Chapter 4:

Conclusions of the draft determination

Introduction

This chapter explains the Water Industry Commissioner's analysis of the revenue and customer base of Scottish Water in 2005-06. It also outlines the assumptions that the Commissioner used in setting caps on the retail charges that customers would have to pay.

This chapter summarises the information that the Commissioner used in the tariff basket models¹. More detailed information was presented in Appendix 13 of the Commissioner's draft determination.

Ministerial Guidance on charging

In the Ministerial Guidance of February 2005, the Scottish Ministers set out the principles to be applied when translating the allowed level of revenue into retail charges to customers. The principles they required were as follows.

- Retail charges to be set on a harmonised basis across Scotland.
- Retail charges based on Council Tax bands for household unmeasured water charges should continue. No additional incentive for household customers to become metered should be created.
- A rebalancing of £44 million of revenue from non-household customers to household customers in order to reduce cross-subsidies between the groups.
- A new 25% discount for household customers in receipt of Council Tax benefit.
- The 50% discount for second homes to be removed.
- A long-term aim to phase out charging for non-household customers based on rateable values, by:
 - moving to full metering of non-household customers, as far as is practicable by 2010; and
 - moving to banded charges for roads drainage and highway drainage charges.

The Ministerial Guidance is discussed more fully in Volume 4, Chapter 14 of the Commissioner's draft determination. Table 4.1 summarises the principles of charging that Ministers required.

Table 4.1: Ministers' principles of charging

	Current charging arrangements 2005-06	Updated charging arrangements for 2006-10
Unmeasured household water and sewerage	Based on Council Tax band of property. Discounts available for: <ul style="list-style-type: none"> • single occupants (25%); and • second home owners (or properties that are vacant)² (50%). Transitional relief available for customers in receipt of Council Tax benefit.	Continue to be based on Council Tax band: <ul style="list-style-type: none"> • Discounts available to single occupants to remain. • Discounts for second-home owners to be removed. • Customers in receipt of Council Tax benefit to get a new 25% discount.
Unmeasured non-household water and sewerage	Minimum charge for connection to the network. Additional charge based on a proportion of the rateable value of the property.	To be metered where practical and as far as is possible by 2010.
Metered water and sewerage	Fixed charge based on the size of the meter. Additional charge based on the amount of water consumed and waste water discharged.	No change to charging arrangements.
Surface water drainage	Measured household customers pay in relation to their Council Tax band. Non-household customers pay a charge that is a proportion of the rateable value of the property.	No changes announced for household customers. Non-household customers to pay in relation to the surface area of their property. Change to be implemented as far as is practical by 2010.

The Commissioner's draft determination complied fully with the Ministers' Guidance on both the investment and charging objectives.

Revenue and revenue rebalancing

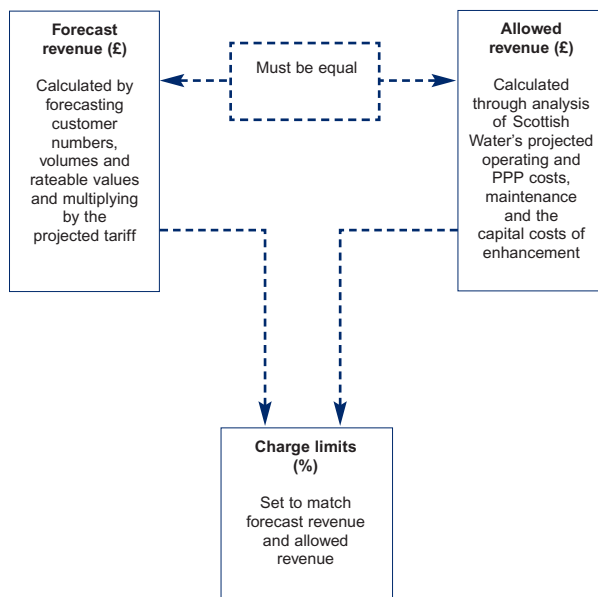
The Commissioner calculated retail charge limits by matching his assessment of revenue (based on the retail charge limits and expectations of the customer base) with the allowed for level of revenue in each year. The Commissioner referred to the customer base as the tariff multiplier. The tariff multiplier is a function of the number and type of connections and the volume of water consumed (or waste water discharged).

¹ See Chapter 10 of Volume 7 of the draft determination for a full description of tariff baskets and their use in the draft determination.

² As part of a change in Council Tax collection arrangements, second home owners in some council areas no longer receive the full 50% discount. Councils can, at their discretion, reduce it to as low as 10%.

Figure 4.1 illustrates the process that the Commissioner used to set retail charge caps. He first calculated retail charge limits for both Scottish Water's core functions and its retail subsidiary combined. He then calculated separate retail charge limits for Scottish Water's core (wholesale) function³.

Figure 4.1: How retail charge limits are set⁴



The Commissioner's proposed retail charge caps for non-household customers would limit the increases in retail charges that the new retail subsidiary of Scottish Water could levy on its customers. The Commissioner believed that it should be a licence condition of the new retail subsidiary that it agrees to be bound by these retail charge caps. The Commissioner also intended that the non-household retail charge caps should apply to Scottish Water in its role as the 'supplier of last resort'.

The Commissioner also set limits on the increases in wholesale charges that Scottish Water could charge its own and future retailers of water and waste water services to non-household customers.

The information that is used for the baseline and forecast tariff multipliers

The first step in translating revenue caps into charge caps is to forecast the tariff multipliers for each year. It is also important to ensure that this information is consistent with the forecasts of revenue and the customer base for 2005-06. The Commissioner explained that future increases in charges would be applied to that customer base.

The Commissioner started with the best available information for customer numbers, volumes and rateable values in 2004-05⁵, along with forecasts of these parameters for 2005-06. These formed the Commissioner's baseline tariff multipliers. He then forecast changes in these tariff multipliers from this base.

The Commissioner noted that, where possible, he had used information from Scottish Water's business plans or its subsequent clarifications. He also drew on comparisons with the companies south of the border.

The Commissioner explained that using information from Scottish Water's business plans had posed a number of problems. Much of the information that Scottish Water had supplied to the Commissioner had been inconsistent, even when resubmitted. The Commissioner expressed frustration that there had been large variations in the reported number of customers, let alone the services that these customers used. He expressed disappointment that Scottish Water had not provided more consistent information or at least a fuller explanation of the reasons for the changes.

The Commissioner wrote to the three former water authorities and to Scottish Water on a number of occasions to request that their customer information should be improved⁶. The information did appear to be starting to improve. However, in December 2004 the Commissioner received Scottish Water's revised scheme

³ This affects only licensed retailers to non-household customers.

⁴ The charge limits will influence the individual tariff within each basket.

⁵ We chose 2004-05 because it is the latest year for which customer information is available and it is also the 'reference year' for our tariff basket formula for 2006-07.

⁶ See WIC letters 1, 4, 9, 14, 22 and 52 in Appendix 10 of the Commissioner's draft determination.

of charges⁷. This informed the Commissioner that Scottish Water had undertaken cleansing of the non-household customer database and, in doing so, had come across a large number of errors. The Commissioner noted that Scottish Water's first draft business plan – published only a month earlier – had not made any reference to the scale of the errors. Customer numbers, rateable values and volumes consumed were now said to be considerably lower than previous estimates.

Scottish Water's second draft business plan showed the impact on the underlying revenue of these changes in the customer base. Scottish Water made the decision to adjust the tariff multipliers for 2004-05 to reflect prior year adjustments. This further (and artificially) reduced the reported customer base in 2004-05. The Commissioner therefore asked Scottish Water to resubmit the supporting customer numbers.

Customer baseline for the Strategic Review of Charges 2006-10

Scottish Water resubmitted tariff multipliers for 2004-05 and 2005-06. The resubmitted information included the results of a further three months of data cleansing. In this resubmitted information, Scottish Water did not adjust its forecast customer numbers for the 2006-10 regulatory control period. The resubmitted information for future years was therefore inconsistent with the revised information for 2004-05 and 2005-06.

Table 4.2 shows the range of revenue figures for 2004-05 that Scottish Water submitted.

Table 4.2: Revenue figures submitted by Scottish Water

	Budget (from period 12 RAB Return)	First draft business plan and first scheme of charges submission Forecast	Second scheme of charges submission Forecast	Second draft business plan Forecast	Actual revenue 2004-05 (draft)
Household	£606.6m	£607.9m	£607.9m	£606.2m	£606.2m
Non-household	£320.7m	£320.0m	£302.9m	£302.2m	£284.1m
Trade effluent	£29.5m	£27.8m	£26.3m	£24.9m	£23.2m
Total	£956.8m	£955.6m	£937.1m	£933.3m	£913.5m

⁷ The scheme of charges is the list of all of the tariffs that Scottish Water will charge its customers.

⁸ B8 tables are the tariff multiplier tables.

⁹ This is the first query on Scottish Water's business plan that the Commissioner raised with regard to revenue adjustments.

The Commissioner commented that revenue forecasts for household customers, which are collected by the local authorities, had not varied significantly between different information submissions.

However, he also noted that there was a significant change in the information concerning non-household revenue that was provided by Scottish Water. There was a £43.3 million reduction between budget revenue and draft actual revenue for the 2004-05 accounts. This reduction comprised 11.4% of non-household customer revenue and 21.4% of trade effluent revenue. Scottish Water explained that part of the downward adjustment related to errors in previous years.

The Commissioner compared the budgeted revenue for 2004-05 with revenue information provided by Scottish Water, which did not include any adjustments for previous years' errors. The comparison is shown in Table 4.3.

Table 4.3: Revenue information (excluding prior year adjustments) provided by Scottish Water

	Budget (from period 12 RAB Return)	First draft business plan and first scheme of charges submission Forecast	(Draft) actual detailed reconciliation from resubmitted B8 tables ⁸ (excludes prior year adjustments)	(Draft) actual 2004-05 (excluding prior year adjustments) (from response to BP16 query ⁹)
Household	£606.6m	£607.9m	£607.6m	£606.2m
Non-household	£320.7m	£320.0m	£314.1m	£296.7m
Trade effluent	£29.5m	£27.8m	£23.6m	£27.5m
Total	£956.8m	£955.6m	£945.4m	£930.4m

The Commissioner commented that the information represented in Table 4.3 seemed to show that the underlying reduction in revenue was rather less than that suggested by the draft 2004-05 revenue. However, the Commissioner also noted that, in Scottish Water's revised submission of the tariff multipliers, he received two different versions of the underlying customer base. The Commissioner used the resubmitted B8 tables as the starting point for his analysis of the revenue baseline. He used this information submission because it also contained the customer numbers that he required.

The change in the customer base was considerable. Table 4.4 compares Scottish Water's forecast customer numbers for 2004-05 and 2005-06 with the figures provided in its June 2004 regulatory return.

Table 4.4: Reported change in underlying customer base (non-household properties connected to the water service)

	Annual Return 2003-04	Resubmitted business plan tables 2004-05	Resubmitted business plan tables 2005-06
Measured non-household	81,839	79,219	73,109
Unmeasured non-household	57,854	54,272	48,210
Total	139,693	133,491	121,319

The Commissioner explained that he had used the much lower revised 2005-06 projected customer base in setting charge caps in his draft determination.

The Commissioner expressed his concern that there could be a large number of customers who were either not being billed or were not being billed for the correct amount. He suggested that identifying these customers should be a priority for Scottish Water. It seemed to him to be unlikely that all billing errors should result in extra revenue being accrued by Scottish Water.

Customer numbers

The Commissioner expressed particular concern in relation to the revised number of non-household customers, which appeared to be rather low. The Commissioner compared Scottish Water's reported numbers of non-household customers to the:

- reported number of businesses in Scotland; and
- the situation in England and Wales.

The Commissioner compared Scottish Water's reported number of non-household customers in its 2003-04 Annual Return (prior to the downwards adjustments) with the latest available information on the number of businesses in Scotland. This is shown in Table 4.5.

Table 4.5: Comparisons of business numbers in Scotland¹⁰

	Number of businesses
Scottish Water's non-household water customers 2003-04	139,693
VAT or PAYE registered businesses in Scotland 2003	147,695
Total number of businesses in Scotland 2003 (including customers registered for VAT or PAYE)	262,750

While the Commissioner recognised that many businesses may not have a water connection, he believed that the sort of downwards adjustments that Scottish Water had made seemed to be inconsistent with the actual number of businesses that exist.

The Commissioner compared the number of businesses and the number of households served by each of the water companies in England and Wales. The results of this analysis are set out in Table 4.6.

Table 4.6: Number of businesses and households for water companies in Great Britain

	Household customers	Non-household customers	Non-household customers as a percentage of household customers
South West	636.2	76.0	11.9%
Wessex	470.9	52.3	11.1%
Mid Kent	215.3	20.8	9.6%
Bournemouth	168.7	16.0	9.5%
Cambridge	109.8	9.9	9.0%
Bristol	431.8	38.4	8.9%
Dwr Cymru	1,149.6	101.6	8.8%
Folkestone & Dover	65.3	5.2	7.9%
Dee Valley	104.4	8.2	7.9%
Tendring Hundred	64.3	4.9	7.7%
South East	535.3	41.1	7.7%
Severn Trent	2,996.0	228.0	7.6%
United Utilities	2,743.1	203.0	7.4%
South Staffordshire	494.9	35.5	7.2%
West Hampshire	316.9	22.4	7.1%
Southern	925.2	65.4	7.1%
Yorkshire	1,875.4	132.5	7.1%
Anglian	1,790.7	124.1	6.9%
Portsmouth	269.5	17.7	6.6%
Sutton & East Surrey	246.6	15.9	6.5%
Scottish Water	2,219.0	139.7	6.3%
Thames	3,189.7	200.0	6.3%
Essex & Suffolk	687.9	40.4	5.9%
Northumbrian	1,032.3	59.1	5.7%
Three Valleys	1,150.7	61.9	5.4%
Weighted average			7.2%

¹⁰ Source of number of businesses in Scotland is Scottish Executive, Scottish Economic Statistics 2004, 2004, Table B1.2.

The Commissioner concluded that he would have expected there to be a higher proportion of businesses to properties in more rural areas than in more urban areas.

Scottish Water seemed to have relatively few non-household properties connected per household. Most companies with a similar proportion of non-household customers are located in the South East of England. If Scottish Water had the British average proportion of businesses to households, then it would have around 160,000 non-household customers. The Commissioner concluded that this number of business customers would seem to be consistent with the information available about the number of businesses in Scotland.

The Commissioner expressed some concern about the fact that Scottish Water's restated customer base gave it the equal lowest proportion of businesses to households of any water company in Britain. He considered that it should be a priority for Scottish Water to examine its records carefully to make sure that it was billing all customers who receive a service.

The Commissioner believed that there needed to be a detailed review of the customer base, including comparisons with network maps and analysis of void properties.

Notwithstanding his concerns about the quality of the information provided by Scottish Water, the Commissioner accepted Scottish Water's projected lower customer numbers and revenue for 2005-06. This was likely to favour Scottish Water.

This chapter continues with an explanation of baseline and forecast tariff multipliers for household and non-household customers.

Baseline and tariff multipliers for household water and waste water customers

The Commissioner explained in detail how he had set the tariff multipliers for both household and non-household customers. These calculations are set out in detail in the appendices to the draft determination¹¹.

¹¹ See Appendix 13 of the draft determination.

Baseline customer numbers – unmeasured

Unmeasured household customers pay for their water and sewerage services according to the Council Tax band of the property in which they live. For Council Tax purposes, properties are banded from A to H. In setting water charges, the Commissioner considers the number of Band D equivalent properties. The 'Band D equivalent' is calculated by multiplying the number of customers in each category by the relevant number of ninths of a Band D bill and dividing by nine.

A number of discounts apply to unmeasured household customers. For example:

- bills for customers in receipt of disability benefits are discounted by one band from the banding of the property in which they live;
- properties with single adult occupancy receive a 25% discount; and
- properties that are the owners' second home receive a 50% discount.

The percentage of a Band D bill paid by each band is shown in Table 4.7.

Table 4.7: Proportion of Band D bill for each customer

	Full charge	25% discount	50% discount
Band A (disabled relief)	5/9	3.75/9	2.5/9
Band A	6/9	4.5/9	3/9
Band B	7/9	5.25/9	3.5/9
Band C	8/9	6/9	4/9
Band D	9/9	6.75/9	4.5/9
Band E	11/9	8.25/9	5.5/9
Band F	13/9	9.75/9	6.5/9
Band G	15/9	11.25/9	7.5/9
Band H	18/9	13.5/9	9/9

The Commissioner asked Scottish Water to provide customer information at an individual band level. The detailed assumptions that he used were set out in Appendix 16 of the draft determination.

Unmeasured household water and waste water customers for 2004-05 and 2005-06 are shown in Table 4.8. The Commissioner took this information from Scottish Water's second draft business plan. This formed the baseline for the Commissioner's projections of future customer numbers.

Table 4.8: Baseline unmeasured household customer base

	Band D equivalent properties 2004-05	Band D equivalent properties 2005-06
Water	1,838,904	1,851,306
Waste water	1,757,201	1,769,222

Baseline customer numbers – measured households

Measured household customers' bills comprise three elements:

- An annual fixed charge for connection based on the size of their connection. All measured household customers currently have the smallest connection available (20mm).
- A volumetric charge based on the volume of water they consume and waste water they discharge.
- A charge for surface water drainage based on the Council Tax band of the property.

The Commissioner took information on the number of measured household customers from Scottish Water's second draft business plan. Information on the number of such customers is set out in Table 4.9.

Table 4.9: Baseline measured household customer base

Water	2004-05	2005-06
Number of connected properties	438	438
Total volume	70,080m ³	70,080m ³
Sewerage		
Number of connected properties	158	158
Total volume	16,591m ³	16,591m ³
Surface water drainage		
Property drainage – Band D equivalent connected properties	285	285
Roads drainage – Band D equivalent connected properties	285	285

Future trends in household customer numbers

The Commissioner assumed that no unmeasured household customers would switch to a measured charging basis during the 2006-10 regulatory control period. He noted that it was possible that some high banded households may have a small incentive to switch to measured tariffs, but commented that the draft determination had not created any new incentives to switch. This was broadly in line with the Ministerial Guidance.

Unmeasured household customer forecasts

In its second draft business plan, Scottish Water stated that it believed that the number of households would increase by 0.6% per year. It estimated that the annual increase in Band D equivalent properties would be 0.67%.

The Commissioner examined these estimates in some detail. He noted that only a small percentage of households on the Council Tax register are not connected for water and sewerage services. The Commissioner explained that Scottish Water's estimate of growth was relatively low. He showed the historical growth rates in the number of properties. This is set out in Table 4.10.

Table 4.10: Historical growth rates in number of properties

Percentage growth	Customer numbers (chargeable)	Band D equivalent properties
1996-97	0.62%	0.77%
1997-98	0.70%	0.66%
1998-99	0.84%	0.98%
1999-00	0.63%	0.76%
2000-01	0.77%	0.89%
2001-02	0.59%	0.89%
2002-03	0.79%	0.91%
2003-04	0.81%	1.06%
Average	0.72%	0.86%

Table 4.10 shows that the growth rates for chargeable properties and Band D equivalent properties have consistently been higher than those that Scottish Water had forecast.

The Ministerial Guidance required investment to remove development constraints for 15,000 new homes a year in the 2006-10 regulatory control period. The Commissioner noted that even if he assumed that only these 15,000 homes would be built each year, this would result in an annual growth rate in the number of connected properties of 0.68%. This would be less than the average growth in connected properties over the past eight years. It would, however, imply an annual growth rate of 0.89% in Band D equivalent properties. The Commissioner noted that although this was a conservative estimate (it assumed no housing construction in areas that had not been development constrained), both estimates were higher than those proposed by Scottish Water.

The Ministerial Guidance also required the following changes to the structure of unmeasured household charges with effect from April 2006:

- discounts for customers with second homes are to be abolished in 2006-07;
- transitional relief for customers receiving Council Tax benefit (funded by the Scottish Executive) is to be abolished in 2006-07; and
- a new 25% discount for customers who receive Council Tax benefit is to be introduced in 2006-07.

The Commissioner explained that removing the discounts for second home owners would increase Scottish Water's revenue, but that the introduction of a 25% discount for customers who receive Council Tax benefit would decrease its revenue.

Table 4.11 outlines the Commissioner's calculation of the net change in the number of Band D equivalent customers as a consequence of the Ministerial Guidance. The Commissioner assumed that 75% of customers receiving a 50% discount were second home owners and that customers receiving Council Tax benefit would continue to represent broadly the same proportion of the total number of households in each band.

Table 4.11: Projected movements in Band D equivalent customers 2006-07 as a result of changes in discounts

	Water customers	Waste water customers
Band D equivalent customers before changes in discount structure	1,868,659	1,786,541
Reduction in Band D equivalent customers due to introduction of 25% discount for customers in receipt of Council Tax benefit	52,689	49,572
Increase in Band D equivalent customers due to removal of 50% discount for customers with second homes	37,966	33,218
Total number of Band D equivalent customers following changes in discount structure	1,853,938	1,770,184
Net difference	-14,721	-16,357

The Commissioner also drew attention to the fact that this change also had an impact on the expected rate of change in the number of Band D equivalent properties.

The Commissioner explained that customers in receipt of Council Tax benefit are generally in low-banded households, while second homes seem to be generally in higher bands. The slowly growing categories of property that pay a smaller proportion of a Band D property begin to have an increasingly lower overall weight in the calculation of Band D equivalent properties. Conversely, the faster growing categories of property that pay more than a Band D property now begin to have a greater overall weight.

The Commissioner's analysis suggested a predicted trend growth for 2006-07 to 2007-08 of between 0.92% and 0.98%. His projections of Band D equivalent customers for 2004-05 to 2009-10 are shown in Table 4.12.

Table 4.12: Projections of water and waste water unmeasured household Band D equivalent customers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Water	1,838,904	1,851,306	1,853,938	1,871,402	1,888,870	1,906,336
Waste water	1,757,201	1,769,222	1,770,184	1,787,657	1,805,128	1,822,596

Measured household customer forecasts

In its second draft business plan, Scottish Water assumed that measured household customer numbers and volumes would remain constant until 2010. The Commissioner accepted this assumption.

The Commissioner's projections for measured household customers are summarised in Table 4.13.

Table 4.13: Projections of water and waste water measured household customers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Water						
Number of connected properties	438	438	438	438	438	438
Total volume	70,080m ³	70,080m ³	70,080m ³	70,080m ³	70,080m ³	70,080m ³
Sewerage						
Number of connected properties	158	158	158	158	158	158
Total volume	16,591m ³	16,591m ³	16,591m ³	16,591m ³	16,591m ³	16,591m ³
Surface water drainage						
Roads drainage – Band D equivalent connected properties	285	285	285	285	285	285
Property drainage – Band D equivalent connected properties	285	285	285	285	285	285

The Commissioner used the customer numbers in Tables 4.12 and 4.13 to project revenue and to set charges for household customers. The detailed

information that underlies the summaries presented in these tables can be found in Appendix 13 of the Commissioner's draft determination.

Baseline and tariff multipliers for non-household water and waste water customers

Baseline tariff multipliers – unmeasured non-household

The Commissioner explained that charges for unmeasured non-household customers are based on the rateable value of their properties. Bills for these customers comprise three elements:

- a minimum charge for connection to the network;
- an additional charge for water and sewerage based on the rateable value; and
- an additional charge for surface water drainage based on the rateable value.

The Commissioner accepted the information in Scottish Water's second draft business plan on both baseline customer numbers for water and waste water and their rateable values. These assumptions are shown in Table 4.14.

Table 4.14: Baseline unmeasured non-household customer base 2004-05 and 2005-06

	2004-05	2005-06
Water		
Number of connections	54,272	48,210
Rateable value ¹²	£472.7m	£425.3m
Waste water		
Number of connections	51,384	45,547
Rateable value	£465.1m	£418.4m

Further detailed information about non-household unmeasured customers can be found in Appendix 13 of the Commissioner's draft determination.

¹² Includes a small number of customers who continue to receive charitable relief. These discounts were formerly provided by local authorities and were inherited by the three former water authorities when they were formed in 1996-97. Following public consultation, Ministers announced the phased removal of these discounts from 2000. All charitable relief should have ended by April 2006.

Baseline customer numbers – measured non-household

The Commissioner explained that bills for measured non-household customers comprise three elements:

- an annual fixed charge for connection based on the size of their meter;
- a volumetric charge based on the volume of water they consume and sewage they discharge; and
- a charge for surface water drainage based on the rateable value of the property.

The Commissioner used the baseline information for the number of meters, meter sizes, consumption and rateable values for water and waste water that are set out in Table 4.15.

Table 4.15: Baseline measured non-household customer base 2004-05 and 2005-06

	2004-05	2005-06
Water		
Number of meters		
20mm or less	68,623	69,324
Greater than 20mm	12,802	8,080
Total number of meters	81,425	77,404
Volumes (m³)		
20mm meter, volumes less than or equal to 25m ³	1,445,000m ³	1,485,000m ³
20mm meter, volumes greater than 25m ³	30,315,000m ³	30,365,000m ³
Greater than 20mm meter, volumes less than or equal to 100,000m ³	56,121,078m ³	55,536,656m ³
Greater than 20mm meter, volumes of greater than 100,000m ³ but less than or equal to 250,000 m ³	11,615,413m ³	10,697,991m ³
Greater than 20mm meter, volumes of greater than 250,000m ³	52,360,370m ³	50,288,304m ³
Total volume	151,856,861m ³	148,372,952m ³
Sewerage		
Number of meters		
20mm or less	49,137	48,112
Greater than 20mm	7,222	3,257
Total number of meters	56,359	51,369
Volumes		
20mm meter volumes less than or equal to 23.75m ³	977,446m ³	1,024,946m ³
20mm meter volumes greater than 23.75m ³	16,573,000m ³	16,611,000m ³
Volume discharged for all other meter sizes	26,140,126m ³	24,874,650m ³
Total volume discharged	43,690,572m ³	42,510,596m ³

A detailed breakdown of metered non-household customer information is provided in Appendix 13 of the Commissioner's draft determination.

Future trends

Ministers have set Scottish Water the objective of moving to full metering of non-household customers (as far as is practicable) by 2010.

We noted earlier that Scottish Water resubmitted its customer number tables to the Commissioner and updated its information for 2004-05 and 2005-06. However, Scottish Water did not update its information for future trends. As a result, the Commissioner had information from Scottish Water on future trends that was inconsistent with its updated information on customer numbers for 2004-05 and 2005-06.

The Commissioner therefore had to forecast changes in the customer base from the 2004-05 and 2005-06 information submitted by Scottish Water.

Two factors have an impact on the non-household customer base:

- underlying changes in customer numbers and volumes as a result of economy-wide factors; and
- changes in the way in which existing customers pay for the services they receive.

The Commissioner examined each of these in turn.

Underlying trend changes – customer numbers

The Commissioner used historical trends in customer numbers to understand likely changes in the customer base. These trends are set out in Table 4.16.

Table 4.16: Numbers of businesses (excluding central and local government) by size band 1999 to 2003¹³

	1999	2000	2001	2002	2003	Percentage change 1999 to 2003
0-49 employees	226,510	230,865	237,555	246,300	256,855	13.4%
50-249 employees	3,270	3,350	3,500	3,490	3,415	4.4%
250+ employees	2,220	2,245	2,345	2,295	2,270	2.3%

The Commissioner commented that it was clear that there had been a general rise in the number of businesses in Scotland over recent years. A general rise in the number of businesses should therefore be expected to increase the number of businesses that Scottish Water served.

The Ministerial Guidance on investment required that 2,025 hectares of commercial land should be made available for development. Scottish Water has assumed 28 household population equivalents per hectare¹⁴. This suggests an annual volume of 1,420m³ per hectare (based on Scottish Water's information on consumption). The Commissioner assumed that new businesses would have the same consumption characteristics as current unmeasured customers (331m³ per year). This suggested approximately 4.3 businesses per hectare. This equated to around 8,707 new businesses over the regulatory control period – or around 2,177 new businesses per year.

The Commissioner's projections of the total number of non-household customers for water and waste water are set out in Table 4.17.

Table 4.17: Projected total non-household customers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Non-household customers (water)	133,491	121,319	123,496	125,673	127,850	130,027
Non-household customers (waste water)	105,283	94,901	97,078	99,255	101,432	103,609

Commenting on these projections, the Commissioner noted that, despite his assumptions about a growing customer base, Scottish Water would still have fewer customers in 2009-10 than it had claimed to have in 2004-05.

Underlying trend changes – volumes

Scottish Water made different assumptions about the water use of different categories of non-household customers. The Commissioner reviewed the evidence that it submitted. He agreed, in principle, that large users were likely to exhibit greater volume declines than customers who used less water. The Commissioner assumed that there would be no net increase or decrease in the consumption of customers with the lowest water use (those with a 20mm connection).

The Commissioner noted that in its resubmitted business plan tables, Scottish Water projected the following volume changes for customers with a bigger meter than 20mm:

- Consumption of less than or equal to 100,000m³ per year: increase of 1.6% from 2005-06 to 2009-10. This is around 0.4% per year.
- Consumption of greater than 100,000m³ but less than or equal to 250,000m³ per year: a decline of 3.4% from 2005-06 to 2009-10. This is around 0.9% per year.
- Consumption of greater than 250,000m³ per year: a 19.2% reduction between 2005-06 and 2009-10. This is around a 5.2% reduction per year.

The Commissioner noted that Scottish Water's projections resulted in a decline in the volume that is consumed by customers with a meter bigger than 20mm of around 9,150 MI¹⁵. This is almost enough water for 82,000 households – or all of the households in the Renfrew Council area – for a whole year. He considered this to be unlikely.

¹³ Source: Scottish Executive, Scottish Economic Statistics 2004, 2004, Table B1.2. Some 25% of Scottish Water's non-household revenue comes from public sector organisations.

¹⁴ This is taken from the Reporter's comments on Table B5.2W of Scottish Water's second draft business plan.

¹⁵ MI = Megalitres = 1,000,000 litres.

The Commissioner compared the evidence provided by Scottish Water with historical trends in England and Wales. From this, he developed the following assumptions:

- consumption of less than or equal to 100,000m³ per year: no change over the period;
- consumption of greater than 100,000m³ but less than or equal to 250,000m³ per year: a decline of 1.4% per year; and
- consumption of greater than 250,000m³ per year: a decline of 1.8% per year.

This reduced the decline in water use to 4,100 MI.

The Commissioner assumed that each new non-household connection has the smallest possible (20mm) connection. He also assumed that these new connections would consume the average volume of a current unmeasured customer.

The Commissioner made the same assumptions for waste water.

Changes in the way in which non-household customers pay for water and waste water

In its second draft business plan, Scottish Water indicated that it intended to move to full metering of non-household customers by April 2010. However, it also said that it would not start charging customers on a metered basis until after 2010.

The impact of this assumption on the non-household customer base is set out in Table 4.18.

Table 4.18: Commissioner's projections of the number of measured and unmeasured non-household customers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Water						
Metered	79,219	73,109	75,286	77,463	79,640	81,817
Unmetered	54,272	48,210	48,210	48,210	48,210	48,210
Total	133,491	121,319	123,496	125,673	127,850	130,027
Waste water						
Metered	53,899	49,354	51,531	53,708	55,885	58,062
Unmetered	51,384	45,547	45,547	45,547	45,547	45,547
Total	105,283	94,901	97,078	99,255	101,432	103,609

The Commissioner assumed that the meter profile of customers with meters larger than 25mm did not change during the 2006-10 regulatory control period¹⁶.

The effect of all of these changes on the customer base (and the Commissioner's assumptions) for 2004-05 to 2009-10 is summarised in Tables 4.19 and 4.20.

Table 4.19: Commissioner's projection of unmeasured tariff multipliers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Water						
Number of connections	54,272	48,210	48,210	48,210	48,210	48,210
Rateable value	£472.7m	£425.3m	£425.3m	£425.3m	£425.3m	£425.3m
Waste water						
Number of connections	51,384	45,547	45,547	45,547	45,547	45,547
Rateable value	£465.1m	£418.4m	£418.4m	£418.4m	£418.4m	£418.4m

¹⁶ Scottish Water's rightsizing programme was targeted specifically at customers with a 40mm meter or greater. However, there has been considerable movement in the 25mm meter category, suggesting that many of these customers have also had their meter size changed.

Table 4.20: Commissioner's projection of measured tariff multipliers

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Water						
Number of meters						
20mm or less	68,623	69,324	71,501	73,678	75,855	78,032
Greater than 20mm	12,802	8,080	8,083	8,083	8,083	8,083
Total number of meters	81,425	77,404	79,584	81,761	83,938	86,115
Volumes						
20mm meter, volumes less than or equal to 25m ³	1,445,000m ³	1,485,000m ³	1,539,435m ³	1,593,860m ³	1,648,285m ³	1,702,710m ³
20mm meter, volumes greater than 25m ³	30,315,000m ³	30,365,000m ³	31,031,284m ³	31,697,446m ³	32,363,608m ³	33,029,770m ³
Greater than 20mm meter, volumes less than or equal to 100,000m ³	56,121,078m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³
Greater than 20mm meter, volumes of greater than 100,000m ³ but less than or equal to 250,000m ³	11,615,413m ³	10,697,991m ³	10,560,446m ³	10,424,669m ³	10,290,637m ³	10,158,329m ³
Greater than 20mm meter, volumes of greater than 250,000m ³	52,360,370m ³	50,288,304m ³	49,383,115m ³	48,494,219m ³	47,621,323m ³	46,764,139m ³
Total volume	151,856,861m ³	148,372,952m ³	148,050,936m ³	147,746,850m ³	147,460,509m ³	147,191,604m ³
Sewage						
Number of meters						
20mm or less	49,137	48,112	50,289	52,466	54,643	56,820
Greater than 20mm	7,222	3,257	3,257	3,257	3,257	3,257
Total number of meters	56,359	51,369	53,546	55,723	57,900	60,077
Volumes						
20mm meter volumes less than or equal to 23.75m ³	977,446m ³	1,024,946m ³	1,030,793m ³	1,082,497m ³	1,134,201m ³	1,185,904m ³
20mm meter volumes greater than 23.75m ³	16,573,000m ³	16,611,000m ³	17,225,458m ³	17,839,917m ³	18,454,375m ³	19,068,833m ³
Volume discharged for all other meter sizes	26,140,126m ³	24,874,650m ³	24,656,480m ³	24,442,090m ³	24,231,412m ³	24,024,382m ³
Total volume discharged	43,690,572m ³	42,510,596m ³	42,912,732m ³	43,364,503m ³	43,819,987m ³	44,279,120m ³

Surface drainage charges

The Commissioner explained that surface drainage charges are split into property drainage charges and roads drainage charges. Both charges are based on a proportion of the rateable value of a customer's property. Both measured and unmeasured customers pay on the same basis. The Commissioner noted that the total rateable value baseline for surface drainage was therefore unaffected by customers changing between having unmeasured and measured supplies.

The Commissioner assumed that each new property that is added in the 2006-10 regulatory control period would have a surface drainage connection. He also assumed that the rateable value of each new connection would be equal to the average rateable value in Scotland of £20,000.

The Commissioner's projected surface drainage rateable values for property drainage and roads drainage are set out in Table 4.21.

Table 4.21: Commissioner's projected rateable values for surface drainage 2004-05 to 2009-10

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Property drainage	£2,595.5m	£2,403.4m	£2,446.9m	£2,490.4m	£2,534.0m	£2,577.5m
Roads drainage	£2,714.6m	£2,513.7m	£2,557.2m	£2,600.8m	£2,644.3m	£2,687.8m

Trade effluent charges

The Commissioner explained that charges for trade effluent are based on the Mogden formula¹⁷. This formula relates the charge that the customer pays to the strength and volume of the customer's effluent discharge. Scottish Water made a large downwards adjustment in its trade effluent customer base for 2004-05 and 2005-06. The Commissioner accepted Scottish Water's adjustment and its assumptions on the change in the trade effluent customer base. Full details of the trade effluent customer tariff multipliers were included in Appendix 13 of the draft determination.

Table 4.22 presents a summary of the Commissioner's projected customer numbers and volumes for trade effluent.

Table 4.22: Commissioner's projected customer numbers and volumes for trade effluent

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Number of customers						
Standard charges	719	1,171	1,448	1,593	1,802	1,802
Capped charges	1,084	631	354	209	0	0
Non-Mogden formula	70	70	67	67	67	67
Total	1,873	1,872	1,869	1,869	1,869	1,869
Volume of effluent						
Standard charges	7,753,770m ³	12,481,247m ³	17,939,466m ³	18,695,987m ³	19,265,129m ³	18,301,873m ³
Capped charges	14,743,288m ³	9,281,346m ³	3,406,938m ³	1,583,096m ³	0m ³	0m ³
Non-Mogden formula	unknown	unknown	unknown	unknown	unknown	unknown
Total (excluding non-Mogden formula)	22,497,058m ³	21,762,593m ³	21,346,404m ³	20,279,084m ³	19,265,129m ³	18,301,873m ³

Conclusion

Scottish Water did not provide the Water Industry Commissioner with consistent information on both its current and expected future non-household customer base. The Commissioner drew on the information provided by Scottish Water where possible and ensured that the assumptions that he made were consistent both with the Ministerial Guidance (and Scottish Water's proposed investment programme) and the experience of the companies south of the border.

In a number of areas, the Commissioner stated that he had made conservative assumptions that were likely to benefit Scottish Water. In a charge cap regime, if the chargeable base is underestimated prices will tend to be higher than necessary.

¹⁷ See Volume 2 of the Commissioner's methodology for the Strategic Review of Charges 2006-10 for a fuller description of trade effluent charging.

Chapter 5:

New information since the draft determination was published

Introduction

In the previous chapter we outlined the analysis that the Commissioner used to establish the customer revenue baseline for the draft determination. This is the revenue line to which the proposed charge caps would have applied. We outlined inconsistencies in the information that Scottish Water submitted, and which were identified by the Commissioner. The previous chapter also explained that Scottish Water had initiated a 'data cleansing' project that had significantly reduced the size of the non-household customer base.

In this chapter we examine new information about Scottish Water's customer base that has emerged since the Commissioner published his draft determination.

There are three main sources of new information:

- Scottish Water's Annual Return;
- responses by Scottish Water to the WIC 22 information request; and
- a 'special agreements' register that is submitted by Scottish Water.

We are keen to use the best information available to underpin our decisions about charge caps. These additional sources of information allow us to:

- check consistency with Scottish Water's previous submissions;
- re-assess the reasonableness of the Commissioner's assessment of the customer revenue baseline for the Strategic Review; and
- further consider some of the Commissioner's assumptions about changes in the customer revenue baseline for the 2006-10 regulatory control period.

We discuss each of these new sources of information.

New information provided by Scottish Water

Scottish Water's 2004-05 Annual Return

Each June, Scottish Water is required to submit a detailed Annual Return. This Return contains important financial, asset and customer information.

In the 2004-05 Annual Return, the Commissioner asked for detailed information about each tariff multiplier¹ for the first time. He added a new section (Section P)² for this purpose.

The new Section P expanded on Section A, which presents summary-level information about customers. Previously, the Commissioner had also collected some of the information that was now required as part of Section P in the information that he collected from Scottish Water to support its annual scheme of charges. The Commissioner asked for actual information for 2004-05, plus a forecast of information for 2005-06.

The Commissioner accepted a first draft of the new information with the rest of the Annual Return in June 2005. Scottish Water submitted a final version of Section P on 12 August 2005³.

Section P provides the following information about the customer base.

- Mid-year information (as a proxy for the average) for tariff multipliers relating to fixed charges. This would include, for example, connected properties or rateable values.
- End-of-year information for tariff multipliers that may vary during the year. This may include, for example, the volume of water consumed or the strength of effluent discharged.

¹ A tariff multiplier is the unit that a tariff is multiplied by to generate a bill. For example, this may be water consumption, rateable value or meter size.

² This was in the same format as Section B8 in the guidance for the second draft business plan.

³ This final re-submission took place on 19 August 2005 following agreement with the Commissioner.

The mid-year information could reasonably be expected to reflect accurately the underlying customer base. Since Scottish Water started its data cleansing exercise in the second half of 2004-05, the mid-year information does not reflect the results of the data cleansing.

WIC 22 submission

In addition to the Annual Return information, the Commissioner issued WIC 22, which was a request for Scottish Water to provide reconciled information for billing and revenue (in Excel format). Scottish Water is required to submit the requested information every six months. Scottish Water should provide information for both the end-of-year position and the mid-year position. We can compare this information to that provided in the Annual Return.

We would expect the end-of-year WIC 22 and mid-year WIC 22 for 2004-05 to show the effects of Scottish Water's data cleansing exercise on its customer base.

Special agreements

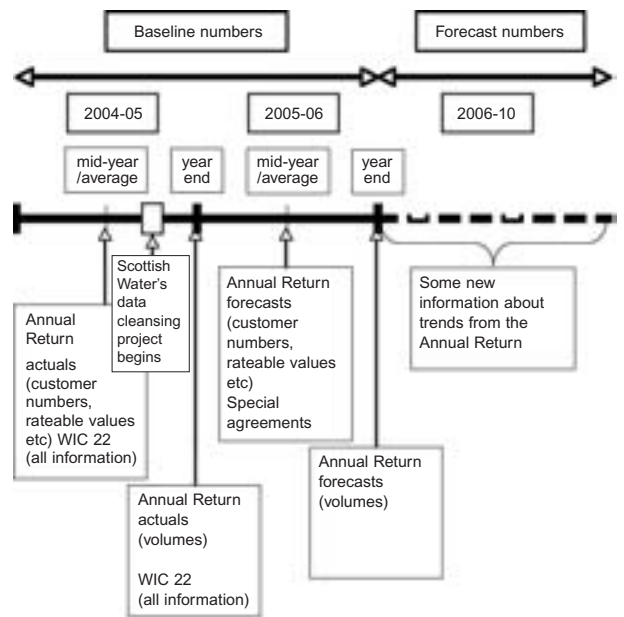
The Water Services etc. (Scotland) Act 2005 required Scottish Water to submit to this Office every agreement that results in customers paying a rate that is different from the tariffs agreed in the charges scheme.

This information may explain differences in customer volumes consumed and the revenue received from customers.

How we used the new information

Figure 5.1 summarises the new information that we have received.

Figure 5.1: Summary of new information about the customer base



The new information was used to:

- analyse the baseline information that was used in the Commissioner's draft determination; and
- analyse future trends in the customer base.

In particular, it was necessary to understand the large downwards adjustment in Scottish Water's non-household customer base that resulted from the data cleansing project. It was important to assess the reasonableness of the Commissioner's projections of the future customer base in the light of the new information that was available.

Table 5.1 summarises how the new information can be used.

Table 5.1: Uses of new information⁴

	Baseline	Forecast
Annual Return		
Unmeasured household	Yes	Partial
Measured household	Partial	Partial
Unmeasured non-household	Partial	Partial
Measured non-household	Partial	Partial
Trade effluent	Partial	No
WIC 22		
Unmeasured household	No	No
Measured household	Partial	No
Unmeasured non-household	Yes	No
Measured non-household	Yes	No
Trade effluent	Partial	No
Special agreements register		
Unmeasured household	No	No
Measured household	No	No
Unmeasured non-household	Partial	Partial
Measured non-household	Partial	Partial
Trade effluent	Partial	Partial

Baseline tariff multipliers

In the previous chapter, we explained how the Commissioner had used Scottish Water's estimate of baseline customer numbers for his draft determination. This chapter continues with a review of the new information and an assessment of how consistent that information is with the assumptions that the Commissioner made in his draft determination.

Unmeasured household

Unmeasured household customers pay for their water and sewerage services according to the Council Tax band of the property in which they live⁵. For Council Tax purposes, properties are banded from A to H. The Commissioner calculated the appropriate charge for a Band D equivalent property⁶.

In both its second draft business plan and its 2004-05 Annual Return, Scottish Water submitted information about the number of unmeasured household customers in each Council Tax band.

Scottish Water's Annual Return contained the same unmeasured household customer numbers that were submitted to the Commissioner in its resubmitted Section B8 of the second draft business plan. There is therefore no difference between the latest available information and that which was used in the draft determination.

Measured households⁷

The information that Scottish Water submitted in its Annual Return for 2004-05 was slightly different from the information that was contained in the resubmitted Section B8 of its second draft business plan. We compare the two separate submissions in Table 5.2.

Table 5.2: Comparison of information provided on measured household customers

	2004-05 business plan	2004-05 Annual Return (P tables)	2005-06 business plan	2005-06 Annual Return (P tables)
Water				
20mm meter	438	415	438	438
25mm meter	0	24	0	0
40mm meter	0	1	0	0
Total volume	70,080m ³	72,914m ³	70,080m ³	70,080m ³
Sewage				
20mm meter	158	126	158	158
25mm meter	0	4	0	0
40mm meter	0	0	0	0
Total volume	16,591m ³	15,908m ³	16,591m ³	16,591m ³
Surface water drainage				
Property drainage – Band D equivalent connected properties	285	285	285	285
Roads drainage – Band D equivalent connected properties	285	285	285	285

In its second draft business plan, Scottish Water stated that all of its metered household customers had the smallest possible (20mm) connection. However, Scottish Water's 2004-05 Annual Return shows that some

⁴ In this table, 'yes' means that there is directly comparable information. The term 'partial' is used to note that there is relevant information, but that it may have different definitions or be otherwise difficult to compare to the Commissioner's draft determination. 'No' means that the information is not comparable.

⁵ The billing of unmeasured household customers is discussed in more detail in Chapter 11 of Volume 7 of the draft determination.

⁶ The 'Band D equivalent' is calculated by multiplying the number of customers in each band by the relevant number of ninths of a Band D bill and multiplying by nine. The relevant number of ninths are set out in Chapter 4 (Table 4.7).

⁷ The billing of measured household customers is discussed in more detail in Chapter 11 of Volume 7 of the draft determination.

household customers had larger meters in 2004-05. The 2004-05 Annual Return also suggests that the volume of water consumed is higher than was stated in the second draft business plan. In contrast, the Annual Return suggests that the volume of waste water discharged is lower than that which was included in the second draft business plan.

Scottish Water's 2004-05 Annual Return would suggest that revenue from measured household customers should be around 1.1% higher than the revenue that it included in its second draft business plan. This difference is shown in Table 5.3.

Table 5.3: Comparison of 2004-05 measured household revenue (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)
Measured household water	£113,576	£119,977
Measured household waste	£42,266	£37,718
Measured household surface drainage	£20,469	£20,469
Total	£176,310	£178,163

The 2005-06 forecast customer base that Scottish Water submitted in its 2004-05 Annual Return is the same as that contained in its second draft business plan. The Annual Return therefore would not lead us to alter the 2005-06 customer base that was used by the Commissioner in his draft determination.

Unmeasured non-household

Charges for unmeasured non-household customers are based on the rateable values of their properties⁸.

There are a number of differences in the information on Scottish Water's unmeasured non-household customers between the 2004-05 Annual Return and the second draft business plan. These are shown in Table 5.4.

Table 5.4: Comparison of unmeasured non-household customers (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)	2005-06 business plan	2005-06 Annual Return (P tables)
Water				
Number of connections	54,272	58,451	48,210	48,210
Rateable value ⁹	£472.7m	£466.8m	£425.3m	£425.3m
Waste water				
Number of connections	51,384	60,566	45,547	45,547
Rateable value	£465.1m	£459.5m	£418.4m	£418.4m

In response to a query that we raised, Scottish Water explained that the differences related mainly to differences in definition. Scottish Water indicated that it had based the resubmitted business plan tables on an estimate of average customer numbers. The Annual Return is based on the actual mid-year customer numbers.

It is understandable that there would be a difference between the average and mid-year information on the customer base. However the extent of these adjustments are surprising. The adjustments would imply material changes in the customer base. For example, the implied average rateable value for an unmeasured customer increases significantly from around £7,800 in 2004-05 to around £8,800 in 2005-06.

Clarification was sought on whether there were more unmeasured non-household waste water customers than water customers in 2004-05. Scottish Water explained that this was due to its data cleansing exercise and that it expected this anomaly to be corrected in the 2005-06 information. This does not appear to be consistent with a previous description of its data cleansing project, which suggested that customers were being reviewed on an individual basis.

⁸ The billing of unmeasured non-household customers is discussed in more detail in Chapter 11 of Volume 7 of the draft determination.

⁹ Includes a small number of customers who continue to receive charitable relief. These discounts were formerly provided by local authorities and were inherited by the three former water authorities when they were formed in 1996-97. Following public consultation, Ministers announced the phased removal of these discounts from 2000. All charitable relief should have ended by April 2006.

The impact on customer revenue of the two sources of information on unmeasured non-household customers is shown in Table 5.5.

Table 5.5: Comparison of 2004-05 revenue from unmeasured non-household customers (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)
Unmeasured non-household water	£19,130,428	£19,554,529
Unmeasured non-household waste	£26,184,470	£27,272,031
Total	£45,314,898	£46,826,560

Table 5.5 shows that Scottish Water's 2004-05 Annual Return suggests that revenue from unmeasured non-household customers would be around £1.5 million (or 3.3%) higher than that indicated in the second draft business plan.

A detailed description of the changes that had resulted from Scottish Water's data cleansing was requested. Although detailed guidance was provided on these requirements, Scottish Water did not provide this information, nor did it explain why it had not met the request. Unfortunately, we are therefore unable to verify the validity of these adjustments for 2004-05.

Scottish Water's 2004-05 Annual Return used the same forecasts for 2005-06 as it had in its second draft business plan. There would therefore be no reason to change the forecast of customer numbers for 2005-06 that the Commissioner used in his draft determination.

Measured non-household

There are a number of differences between the 2004-05 measured non-household customer base indicated by Scottish Water's 2004-05 Annual Return and its second draft business plan. These are shown in Table 5.6.

Table 5.6: Comparison of measured non-household customer base submissions

	2004-05 business plan	2004-05 Annual Return (P tables)	2005-06 business plan	2005-06 Annual Return (P tables)
Water				
Number of meters				
20mm or less	68,623	68,830	69,324	69,320
Greater than 20mm	12,802	14,909	8,080	8,084
Total number of meters	81,425	83,739	77,404	77,404
Volumes				
20mm meter, volumes less than or equal to 25m ³	1,445,000m ³	1,639,018m ³	1,485,000m ³	1,485,000m ³
20mm meter, volumes greater than 25m ³	30,315,000m ³	33,514,337m ³	30,365,000m ³	30,365,000m ³
Greater than 20mm meter, volumes less than or equal to 100,000m ³	56,121,078m ³	63,890,125m ³	55,536,656m ³	55,536,656m ³
Greater than 20mm meter, volumes of greater than 100,000m ³ but less than or equal to 250,000 m ³	11,615,413m ³	11,004,750m ³	10,697,991m ³	8,697,514m ³
Greater than 20mm meter, volumes of greater than 250,000m ³	52,360,370m ³	49,677,230m ³	50,288,304m ³	35,691,580m ³
Total volume	151,856,861m ³	159,725,460m ³	148,372,952m ³	131,775,750m ³
Sewage				
Number of meters				
20mm or less	49,137	48,687	48,112	48,112
Greater than 20mm	7,222	9,429	3,257	3,257
Total number of meters	56,359	58,116	51,369	51,369
Volumes				
20mm meter volumes less than or equal to 23.75m ³	977,446m ³	1,130,743m ³	1,024,946m ³	1,024,946m ³
20mm meter volumes greater than 23.75m ³	16,573,000m ³	18,325,619m ³	16,611,000m ³	16,611,000m ³
Volume discharged for all other meter sizes	26,140,126m ³	27,515,123m ³	24,874,650m ³	24,874,650m ³
Total volume discharged	43,690,572m ³	46,971,485m ³	42,510,596m ³	42,510,596m ³

Table 5.6 shows the significant differences between the information that was provided in the Annual Return and the information provided in the second draft business plan.

There has also been considerable movement within some categories¹⁰. The number of customers with larger meters has changed, and there has been significant movement between standard and non-standard water volumes.

In response to our request for clarification, Scottish Water explained that this results from the difference between the year average and the half-year snapshot. It also attributed some of the differences in meter profile to its meter-rightsizing programme. Scottish Water attributed changes in the classification of water volumes to a better understanding of its customer base.

Although an explanation is welcomed, some issues remain. For example, Scottish Water has used the average/half-year explanation in relation to volumes, but these should be based on year-end information.

The impact on revenue of these two information submissions is shown in Table 5.7.

Table 5.7: Comparison of 2004-05 revenue from measured non-household customers (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)
Measured non-household water	£109,820,191	£120,858,184
Measured non-household waste	£63,815,834	£68,804,364
Total	£173,636,025	£189,662,548

Scottish Water's 2004-05 Annual Return suggests that revenue from measured non-household customers is some £16 million (9.2%) higher than the estimate that was contained in the second draft business plan.

This is clearly a considerable reduction in revenue. Notwithstanding the explanation that has been offered, we remain somewhat concerned about the extent of the

reduction. If we were to accept the explanations provided by Scottish Water (where they may be valid, ie the reduction in the fixed cost tariff multipliers), the revenue suggested in the Annual Return would reduce to just over £183 million. This is still some £10 million higher than was assumed by the Commissioner in his draft determination.

Surface drainage charges

Surface drainage charges are split into property drainage charges and roads drainage charges. The total rateable value baseline for surface drainage should therefore have been unaffected by customers switching from unmeasured to measured supplies.

There are some differences between the Annual Return and second draft business plan. These are shown in Table 5.8.

Table 5.8: Comparison of submissions about the customer revenue base from surface drainage charging

	2004-05 business plan	2004-05 Annual Return (P tables)	2005-06 business plan	2005-06 Annual Return (P tables)
Property drainage	£2,595.5m	£2,537.1m	£2,403.4m	£2,403.6m
Roads drainage	£2,714.6m	£2,638.0m	£2,513.7m	£2,513.7m

It is surprising to note that the data cleansing exercise had increased the chargeable rateable value at the same time that there had been a considerable decline in the absolute number of customers. We were concerned by the suggestion that further data cleansing would then reduce the total rateable value. Scottish Water has confirmed that it believes these projections to be robust.

¹⁰ Table 5.6 is a summary of more detailed information based on the same categories that the Commissioner used for his draft determination.

The impact on revenue is shown in Table 5.9.

Table 5.9: Comparison of 2004-05 revenue from surface drainage customers (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)
Property drainage	£39,789,858	£38,896,383
Roads drainage	£55,387,688	£53,824,414
Total	£95,177,546	£92,720,797

Trade effluent

Scottish Water's Annual Return did not change any information on the trade effluent customer base. It remains consistent with the information that the Commissioner used in the draft determination.

Overall impact of differences between the submissions

The overall impact of the differences between the Annual Return and the second draft business plan submissions is shown in Table 5.10.

Table 5.10: Overall implied primary revenue (Annual Return 2004-05 and second draft business plan)

	2004-05 business plan	2004-05 Annual Return (P tables)
Unmeasured household	£607,449,861	£607,449,861
Measured household	£176,310	£178,163
Unmeasured non-household	£45,314,898	£46,826,560
Measured non-household	£173,636,025	£189,662,548
Surface drainage	£95,177,546	£92,720,797
Trade effluent	£23,647,895	£23,647,912
Total	£945,402,536	£960,485,843

Scottish Water's business plan suggested a revenue base that is some £15 million (or 1.6%) lower than that included in its Annual Return.

Non-household customer information: WIC 22

In 2004-05, Scottish Water submitted WIC 22 information for both the half-year and the full-year. The full-year version should have reflected the results of the data cleansing exercise.

We have endeavoured to use this information to substantiate the business plan and/or the Annual Return information.

Unmeasured non-household customers

Table 5.11 compares the half-year and full-year information for 2004-05 on unmeasured non-household customer revenue.

Table 5.11: Half-year and full-year revenue from unmeasured non-household customers

	2004-05 WIC 22 mid-year	2004-05 WIC 22 year-end
Water fixed charge	£7,562,804	£7,122,617
Water RV charge	£21,133,679	£20,059,433
Total water	£28,696,483	£27,182,050
Waste water fixed charge	£7,597,490	£7,258,186
Waste water RV charge	£21,413,345	£22,000,050
Total waste water	£29,010,835	£29,258,236
Total unmeasured revenue	£57,707,318	£56,440,286

Table 5.11 shows that there has been a general reduction in revenue between the half and full year. The reduction in revenue is similar to the difference between the Annual Return and the second draft business plan. This would appear to be consistent with Scottish Water's explanation of the impact of its data cleansing exercise.

Measured non-household customers

Table 5.12 compares half-year and full-year information for 2004-05 about measured non-household customer revenue.

Table 5.12: Half-year and full-year revenue from measured non-household customers

	2004-05 WIC 22 mid-year	2004-05 WIC 22 year-end
Water fixed charge	£24,570,679	£25,071,685
Water volumetric charge	£74,258,510	£84,826,998
Total water	£98,829,189	£109,898,683
Waste water fixed charge	£13,325,239	£13,004,886
Waste water volumetric charge	£38,325,814	£51,348,467
Total waste water	£51,651,053	£64,353,354
Total measured revenue	£150,480,242	£174,252,036

The WIC 22 submission suggests that revenue from measured customers has increased by some £24 million. This would be inconsistent with Scottish Water's Annual Return and business plan. Year-end revenue is only around £1 million higher than forecast in the business plan, so it is possible that the WIC 22 report is inaccurate. Scottish Water has not, however, highlighted any issues about the quality of the submission.

Projected customer numbers

Since the Commissioner published his draft determination, there has been no substantive new information on trends in customer numbers.

In its Annual Return submission, Scottish Water indicated that it connected 16,500 properties to the water network during 2004-05. It also forecasts that there will be 16,500 new properties each year for the next three years. For 2006-07, this is more than the 13,500 it included in its second draft business plan projections.

Conclusion

The new information that we received from Scottish Water as part of our normal regulatory information cycle would not appear sufficient to substantiate a change in the revenue baseline that was forecast for 2005-06 in the draft determination. However we have noted that some of the new information would appear to support a higher baseline. Indeed, tariff multipliers for measured non-household customers may be too low.

Chapter 6:

Scottish Water's representations

Introduction

In Chapter 4 we summarised the Water Industry Commissioner's views on Scottish Water's customer revenue base. In this chapter we present a summary of Scottish Water's representations on this issue. Scottish Water's full response to the Commissioner's draft determination is available on our website.

Scottish Water's representations

Scottish Water made several representations on the customer revenue base that the Commissioner assumed in his draft determination. These are summarised in Table 6.1.

Table 6.1: Representations by Scottish Water on the Commissioner's assumptions of the customer revenue base 2006-10

Chapter of response	Issue
5 – Demand forecasts, customers and charges	Growth in the number of business customers
5 – Demand forecasts, customers and charges	Changes in volumetric consumption by metered customers
5 – Demand forecasts, customers and charges	Household growth
5 – Demand forecasts, customers and charges	Meter optants
5 – Area-based surface water drainage charges	Cost of moving to an area-based surface drainage charge
8 – Finance, borrowing and tax	Secondary revenue in draft determination

Growth in the number of business customers

Scottish Water's response stated:

*"We agree that the Ministerial Guidance requires us to provide strategic capacity to release the development constraints on 2,025 hectares of commercial land. We do not, however, believe that the rate of occupancy and additional revenue forecast in the Draft Determination is reasonable."*¹

Scottish Water's response stated that the draft determination used statistics that include customers who do not have a water or waste water connection.

In its business plan, Scottish Water assumed that there would be no material change in the number of small-to-medium-sized enterprises (SME). It expected the number of new businesses to be offset by the number of business closures. The net effect would be no growth, or even a decline in the number of SME customers.

Scottish Water made reference to a report by Experian, which it commissioned to assess the potential growth in the business customer base. The report states that in effect, the draft determination had assumed a rate of growth that was around four times the historical average. Experian suggested that a growth rate of around 0.5% in business customer numbers was reasonable.

Scottish Water requested, as a minimum, that we should accept the following:

*"Growth in new business customers should be reduced to no more than 0.5% p.a., recognising that the growth in new businesses assumed in the Draft Determination included those with no employees and therefore little or no demand for our services."*²

Changes in volumetric consumption by metered customers

Scottish Water's representations expressed concerns about the Commissioner's assessment of the volume of water that would be required by large users.

Scottish Water noted that the demand projections in its business plan were based on a detailed assessment of its customer base. It explained that it has key account managers who work closely with some of its largest users. These key account managers have made a site-by-site assessment of water use. These site-by-site assessments have been aggregated to create an overall assessment. Scottish Water noted that the Experian report validated these estimates.

Scottish Water is particularly concerned that efficiency measures at firms that use large quantities of water could significantly erode its revenue base. Scottish Water's representations stated:

¹ Scottish Water, *Scottish Water's Response to the Draft Determination* (September 2005).

² *Ibid*, page 161.

“Overall, however, we have assumed only limited shutdowns among our biggest users, in line with previously announced plans, but we believe our view still has significant downside potential. Independent assessment indicates that the sector is unlikely to grow, because of the lack of multi-national interest in Scotland as a location for investment at present. The Draft Determination appears to make no allowance for these events in its view of volume decline.”³

Scottish Water also identified what it believes is a methodological inconsistency between the treatment of the water volumes required by large customers and smaller customers. It argued that the Commissioner based his assessment of volume decline for larger customers on historical trends from England and Wales. Scottish Water considered that the Commissioner’s assumption that smaller customers would not reduce their usage of water was inconsistent with historical trends. Scottish Water presented a table that showed that total volume (across large and small, measured and unmeasured customers) has declined in England and Wales since 1997-98.

Scottish Water stated in its representations:

“We remain of the view that we will see a decline and that the volumetric decline for non-household customers, described in the second draft business plan, represents the most likely outcome based on the data currently available.”⁴

Household growth

In its representations, Scottish Water suggested that the Commissioner’s draft determination anticipated net household growth “considerably in excess of Ministers’ expectations.”

Scottish Water argued that the Ministerial Guidance to

provide ‘strategic capacity’ for 60,000 households does not translate directly into additional revenue from 60,000 household premises. Instead, Scottish Water argued that some of the households connected will become vacant or be occupied by customers that are exempt from paying Council Tax.

Scottish Water has separately identified a Scottish Executive projection that 47,110 properties will become eligible to pay Council Tax over the 2006-10 period.

Scottish Water’s representations stated:

“The interpretation of the Ministers’ requirements and the supporting guidance in the Draft Determination differs from our assessment and overstates the revenue growth potential for Scottish Water.”⁵

Meter optants

Scottish Water raised issues with the Commissioner’s assumption that no unmeasured customers will move to a metered supply in the 2006-10 regulatory control period. Scottish Water argued that it has historically seen 2,000 non-domestic customers per year switch to paying on a measured basis.

Scottish Water recognised in its response that it is introducing a charge for meter installation for the first time. However, it is concerned that meter optants will still erode its revenue base. Its representations stated:

“While introducing charges for meter installation will be a disincentive to switching, most customers opting for meters will make savings and will opt to pay the meter installation charge. If customers continue to request meters at this rate, we will lose about £11 million of revenue over the 2006-10 period, which has not been allowed for in the Draft Determination.”⁶

³ Ibid, page 94

⁴ Ibid, pages 95-96

⁵ Ibid, page 97

⁶ Ibid, page 99

Area-based surface water drainage charges

Scottish Water was concerned in its response that the Commissioner had not specifically funded the costs of moving to a new area-based surface drainage charge in his draft determination. Its representations stated:

*“We could find no comment in the Draft Determination relating to our costs and proposals on the Executive’s commitment in principle to move to area based surface water drainage charges by 2010. We assume that this cost is not funded in the Draft Determination.”*⁷

Secondary revenue in the draft determination

Scottish Water argued in its response that the assumed secondary revenue in the Commissioner’s draft determination overstated the actual secondary revenue. Scottish Water noted that the revenue it provided in its second draft business plan preceded a reclassification of activities that the Commissioner required.

Scottish Water’s representations stated:

*“Core secondary income reported in the 2004-05 Regulatory Accounts (M and N tables) was £11.2 million. Assuming an annual increase in line with RPI, this would equate to £11.8 million of revenue in 2006-07, which is £2.1 million lower than forecast in the draft determination. We believe that the forecast for secondary revenue is overstated and that it should be revised in line with the actual reported revenue in 2004-05.”*⁸

Summary

Scottish Water’s representations raised a number of issues relating to assumptions that the Commissioner had made in his draft determination. Scottish Water summarised its views as follows:

*“We disagree with the forecasts in the Draft Determination of growth as there is little prospect that it will materialise. With the move to a price cap regime, and this risk being borne by Scottish Water, the Final Determination should adopt central estimates of changes in customer numbers.”*⁹

In the next chapter we set out the representations from other stakeholders to the Commissioner’s assessment of the customer revenue base.

⁷ Ibid

⁸ Ibid, page 149

⁹ Ibid, page 99

Chapter 7:

Other stakeholders' representations

Introduction

This chapter summarises the representations that we received from stakeholders concerning the Commissioner's assumptions, set out in his draft determination, relating to Scottish Water's revenue and customer base. We received three representations on this issue.

In this chapter, we also consider representations that we received in relation to other inputs to the draft determination that concern charging. Five respondents commented on the Ministerial Guidance on the principles of charging. The Commissioner followed these principles in translating Scottish Water's allowed for level of revenue into charge caps. The Commission also received one representation on the introduction of charge caps and three representations commented on the provisions of the Water Services etc. (Scotland) Act 2005 relating to 'special agreements'.

The chapter concludes with an outline of the representations that we received on the proposed level of charge caps. Three respondents welcomed the proposed level of charge caps in the draft determination. A further nine commented on the proposed level of charge caps in relation to the investment programme.

Approach to forecasting revenue

In his draft determination, the Commissioner explained that he had calculated retail charge limits by matching his assessment of customer revenue with the allowed for revenue to deliver the ministerial objectives at the lowest reasonable overall cost. He calculated Scottish Water's customer revenue by forecasting customer numbers, volumes and rateable values and multiplying these by the projected tariffs.

The Commissioner explained that in a charge cap regime, the assumptions underlying these forecasts will influence charges – if the chargeable base is underestimated, charges will tend to be higher than necessary. The Commissioner noted that he had made a number of conservative assumptions when forecasting revenue.

One of the assumptions made by the Commissioner related to the growth of commercial businesses. In order to predict the likely growth of commercial businesses, the Commissioner took account of the requirement in the Ministerial Guidance that 2,025 hectares of commercial land should be made available for development. He used the likely population equivalents that Scottish Water provided, and current consumption information on unmeasured customers to derive an annual growth rate for new businesses.

Three respondents commented on this assumption. The Scottish Trades Unions' Congress (STUC), UNISON Scotland and the Transport and General Workers' Union (T & G Scotland) all commented:

*"The revenue calculations in the DD [draft determination] appear to make a number of optimistic assumptions regarding growth in the customer base. In particular the growth in SME [small-medium enterprises] customers which if it occurs at all is likely to be at the sole trader of the SME scale with very little positive impact on Scottish Water's revenue base."*¹

No other representations were received on the approach to forecasting customer revenue or the assumptions made.

Ministerial Guidance on charging

The Ministerial Guidance of February 2005 set out the Ministers' charging objectives for the industry.

We received five representations on these principles. We may not omit or modify any of these principles in completing our final determination. The representations are therefore reproduced solely for the record.

Harmonisation of charges

The principles of charging require that charges should be set on a harmonised basis across Scotland. This was consistent with a recommendation made in the *Strategic Review of Charges 2002-06*.

¹ Large portions of UNISON Scotland's representation, the STUC's representation and T&G Scotland's representation were verbatim. Representations are set out in Appendix 14 of this document.

One respondent, Stewart Stevenson MSP, commented:

“...I certainly feel it is unfair that water users in the north are charged more than in the south... The creation of Scottish Water has at least levelled increases but has failed to level the total costs. I would hope that Scottish Water can implement the changes to end this unfair and continuing discrimination.”

Unwinding of cross-subsidy

The Ministerial Guidance also set out that there should be a rebalancing of £44 million of revenue from non-household customers to household customers in order to reduce the identified cross-subsidy. The draft determination unwound this cross-subsidy. This explains why household bills increased modestly, while non-household bills fell slightly in nominal terms. Three respondents commented on this issue.

The Scotch Whisky Association commented:

“We are very pleased that the identified £44m cross-subsidy from non-household to household customers is being unwound relatively quickly...”

The CBI noted:

“We are pleased that the overall impact of ‘unwinding’ the cross subsidies from domestic to non-domestic customers and the proposed charge caps will be an average 2.1% reduction in bills for non-domestic customers from 2006-10... We would expect to see this reduction applied as widely as possible across the business community and we would be very disappointed to see any business subjected to an increase in prices.”

The Federation of Small Businesses (FSB) commented:

“Many of our members remain disappointed that reductions over the coming period will not be more significant, given the increased efficiency of Scottish Water and the unwinding of the £44m subsidy between

household and non-household customers (though we are disappointed to note that work on cross-subsidies in sewerage charges have proved inconclusive).”

Non-household metering

The principles of charging set out that unmeasured non-household water and sewerage customers should be metered where practical and as far as possible by 2010.

One respondent, the FSB, commented:

“...we are disappointed that some of those changes, such as the move to meter-only charging, will not be implemented during the forthcoming Strategic Review period.”

Discounts for household customers

The Ministerial Guidance updated charging arrangements for unmeasured household water and sewerage customers. As a result, the existing discounts available to single occupants were to remain; discounts for second homeowners were to be removed; and customers in receipt of Council Tax benefit were to receive a new 25% discount.

One respondent, Glasgow City Council, commented:

“The Director of Finance has indicated that these changes will benefit couple householder properties in Bands A to C, with no change for single households in these Bands. Householders (whether single or couples) above Band D will lose under the new scheme. It is unclear as yet what reduction in water charges households on partial Council Tax Benefit will receive i.e. full 25% of a scaled reduction consistent with their Council Tax Benefit.”

Stewart Stevenson MSP commented:

“I also welcome the 25% water rate discount for households which receive council tax benefit...”

Surface drainage charges

The principles of charging set out that, in future, non-household customers should pay surface water drainage charges in relation to the surface area of their property. The Ministerial Guidance stated that the change was to be implemented as far as is practical by 2010. When implemented, this will mark a change from the existing system whereby non-household customers pay a charge that is a proportion of the rateable value of the property.

In the draft determination, the Commissioner assumed that the existing rateable value system for calculating surface drainage charges was still in place. This was because there was uncertainty about the new charging regime.

One respondent, the Scotch Whisky Association, commented on non-household charges for surface drainage:

“...we understand that in preparing the draft determination, some working assumptions had to be made about charges for non-household customers for surface drainage. We look forward to the arrangements for surface drainage charges being resolved, and in the meantime would re-iterate previous concerns about the inequities of applying any such charges to sites – such as large whisky maturation sites – which may have a large surface area, but where the surface water drains to a watercourse or other natural outfall rather than to a public sewer.”

The use of charge caps and tariff baskets

The commissioning letter for the Strategic Review of Charges 2006-10 required the Commissioner to set charge caps. The Strategic Review of Charges 2002-06 had used a revenue cap.

One respondent, the FSB, commented on the use of charge caps:

“We also welcome the use of individual charge caps (as opposed to a general cap on revenue) as we believe that this is where much of the misunderstanding and resentment arose during the Strategic Review period. The introduction of tariff baskets is also welcome....much of this is in line with our comments regarding the need for greater transparency in charging for water and waste water.”

Special agreements

The Water Services etc. (Scotland) Act 2005 makes provisions to prevent Scottish Water from entering into agreements with non-household customers that depart from the approved scheme of charges. Under the provisions of the Act, existing agreements are to be honoured until they expire. This provision did not have a material impact on the draft determination. However, three respondents to the draft determination noted their concern about the end of such ‘special agreements’.

The CBI commented:

“Scottish Water’s ability to negotiate Special Agreements to keep customers ‘on-network’ has been severely constrained and this is a matter of concern for us.... We recognised that the current funding regime means that if Scottish Water is allowed to negotiate more favourable deals with some of its larger business customers, then other customers will have to pay more. It is our view that such ‘compensating’ increases should not be levied on the rest of the business sector, as this would run contrary to the Scottish Executive’s commitment to economic growth.”

The Scotch Whisky Association noted its concern about:

“... the future ability for large customers to retain or negotiate tailored agreements containing individual solutions for water and trade effluent provision.”

The Scottish Council for Development and Industry (SCDI) commented:

“...it has come to SCDI’s notice that some non-domestic customers face potentially very significant increases in their water and sewerage bills in 2006, irrespective of the Final Determination, as they come to the end of fixed rate contracts.”

The SCDI later commented:

“To ensure that businesses and other organisations are not faced by large increases in bills at short notice, increases should be phased in to allow businesses to adjust and budget accordingly.”

Customer bills

In the draft determination, the Commissioner set out the maximum charges that he believed Scottish customers should pay. He concluded that non-household charges should not increase in 2006-07, 2007-08 or 2009-10. Non-household charges should fall by 2.1% in 2008-09.

The Commissioner also concluded there should be modest increases in household water bills (rising by 2% in 2006-07 and 2% in 2007-08, with no rises in either 2008-09 or 2009-10). He noted that for household customers this would represent a cut in their water and sewerage bills in real terms.

Three respondents commented on the proposed level of maximum charges.

The Scotch Whisky Association noted:

“The projection of stable (or reducing in 2008/9) prices for non-household customers is generally welcome to our members...”

Fife Council commented:

“Fife Council supports the Draft Determination in seeking to reduce charges to customers. Water charges are central to the competitiveness of many businesses in Fife including agriculture, golf and many industry sectors.”

The FSB commented:

“Small businesses now look forward to a reduction, in real terms, in bills and accordingly the FSB welcomes the proposed charge levels...”

A further eight respondents commented on the proposed level of maximum charges in relation to the investment programme. These comments are recorded in Chapter 19.

Summary

Three respondents to the draft determination commented on the Commissioner’s analysis of Scottish Water’s revenue and customer base.

Three respondents welcomed the proposed level of charge caps in the draft determination. A further nine commented on the proposed level of charge caps in relation to the investment programme.

Five respondents commented on the Ministerial Guidance on the principles of charging and other relevant inputs into the draft determination. The Commission has noted the comments but must ensure that the final determination complies with the principles of charging.

The Commission has considered these representations carefully in coming to its conclusions.

Chapter 8: Our conclusions

Introduction

In setting charge caps, we have had particular regard to the initial customer base. The change in average prices will differ from the change in the revenue allowed for to the extent that there is a change in the number of customers or in their pattern of consumption.

The Commissioner outlined his assumptions on the customer revenue base in the draft determination, and stakeholders have made representations on these assumptions.

This chapter explains how we have updated the Commissioner's analysis in the light of representations from stakeholders and the new information that has come to light since the draft determination was published.

Initial customer revenue base

In Chapter 4 we outlined the initial customer revenue base that the Commissioner used in his draft determination of charge limits. We explained that Scottish Water had substantially revised downwards its non-household customer base to take account of a 'data cleansing' exercise. We also noted that the Commissioner had accepted fully revised information from Scottish Water that decreased its initial customer base.

In Chapter 5 we examined new information that has become available since the draft determination was published. We noted that the new information was not sufficient to warrant a material change in the Commissioner's assumptions. We observed that some of the new information, particularly about customer water use, suggested that the Commissioner may have understated the initial customer revenue base.

No stakeholders commented on the initial customer revenue base that the Commissioner had assumed in the draft determination.

We have reviewed all of the evidence available to us. We are concerned that Scottish Water's initial customer

revenue base may be too low. In this regard, we have noted the Commissioner's analysis of the ratio of non-household to household customers.

We have also had regard to reporting of customer numbers over the last five years. We have summarised this information in Figure 8.1.

Figure 8.1: Non-household customer numbers 2000-01 to 2005-06

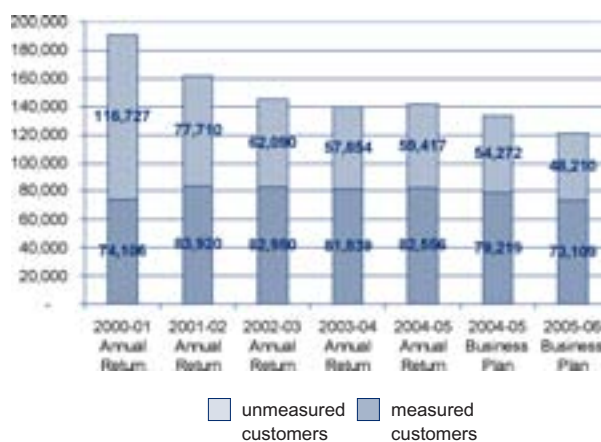


Figure 8.1 suggests that the non-household customer base had been in sharp decline prior to Scottish Water's current 'data-cleansing' initiative.

We consider that Scottish Water should compare its network and billing databases and ensure that it is billing all those who receive a service. We note that Scottish Water has an opportunity to combine this review of its non-household customer information with its site-survey and meter installation programme.

We believe that using this, perhaps understated, initial customer base, has the effect of making Scottish Water's budget constraint less hard.

However we have decided to adopt the initial customer revenue base that the Commissioner used. The tariff basket model we have used is published in Appendix 10 of this determination. We consider that there is scope for Scottish Water to outperform our assumptions. Any such outperformance should be transferred to the gilts buffer.¹

¹ An index linked gilt used to protect the Scottish Water industry against future shocks.

Forecast customer base

Chapter 4 outlined the Commissioner's assumptions about how the customer base might change during the regulatory control period.

Chapter 5 examined new information that has emerged since the draft determination was published. We consider that the new information did not justify a change in the Commissioner's assumptions.

We received a number of representations from stakeholders concerning the forecast customer revenue base. Many of these representations have highlighted the difference between the growth in the customer base that was included in Scottish Water's business plan, and the assumptions that underpinned the Commissioner's draft determination.

Many stakeholders also commented about constraints on new development. They believe that these constraints are caused by a lack of capacity on Scottish Water's networks.

We explained in Chapter 5 that the Commissioner's draft determination made assumptions that ensured consistency between the investment plan, the ministerial objectives and forecast customer numbers.

Scottish Water and three other stakeholders² have suggested that the assumed growth rate in non-household customers is unrealistic. Scottish Water also argued that its forecast growth in household connections was consistent with its investment plan.

We reviewed Scottish Water's assertion that connecting 15,000 new properties does not increase its revenue base by the same amount. We recognise that some properties may not be occupied and that some properties may be wholly or partially exempt. However, we consider that Scottish Water does not appear to have taken account of the fact that some currently unoccupied properties are likely to become chargeable and that some households may start paying bills. We are not aware of any other forecast that the total number of unoccupied or non-chargeable properties is expected to rise. We are

therefore not persuaded by Scottish Water's argument.

We outline our views on the forecast customer revenue base below.

Unmeasured household customers

Unmeasured household customers pay with reference to the Council Tax band of their property. Scottish Water's unmeasured household revenue base will depend on:

- changes in the number of connected unmeasured household properties; and
- changes in the 'average band' of properties.

We have noted that, in general, new properties have a higher Council Tax band than existing properties. Scottish Water's unmeasured household revenue base will therefore increase at a faster rate than the growth in the number of properties.

The underlying unmeasured household customer revenue base can be expressed as a number of 'Band D equivalent' households. The Band D equivalent is calculated by multiplying the number of customers in a Council Tax band category by the relevant number of ninths of a Band D bill and dividing by nine.

We have also assessed the impact of implementing the Ministers' principles of charging. These require:

- the introduction of a 25% discount for those receiving Council Tax benefit; and
- the abolition of the second home discount.

There is an initial reduction in the household unmeasured customer base because the cost of introducing the new benefit for those on Council Tax benefit is greater than the saving generated by abolishing the second home discount. The change in relative weightings (a reduction in the weighting of lower banded households and an increase in the weighting of the higher banded households) will result in faster growth in the number of 'Band D equivalents' in the future.

² The Scottish Trades' Unions Congress (STUC), the Transport and General Workers Union Scotland (T&G Scotland) and UNISON Scotland all echoed Scottish Water's suggestion in their representations.

We have taken account of these changes in our forecast of the household unmeasured customer base.

We consider that our projections of the customer base have to be consistent with the ministerial objectives and the allowed for capital expenditure. In this regard, we have reviewed both the draft determination and the detailed representations made by Scottish Water.

We have concluded that we should allow for a greater increase in the number of 'Band D equivalents' than the Commissioner assumed in his draft determination. We have assumed that underlying growth in the number of properties would continue at recent levels. We believe that we should then allow for the extra growth that will result from the release of development constraints. We have assumed that there will be a two-year lag between the release of the development constraint and the connection of a new paying customer.

We recognise that alleviating development constraints in some areas may reduce growth in other areas where network capacity has not been an issue. This is because developers may now be able to exercise greater choice about the location of a development. We have reduced by half the current underlying growth rate in those years when we will begin to see the benefit of the release of development constraints.

Table 8.1 shows the underlying growth in the number of chargeable properties (for Council Tax purposes).

Table 8.1: Growth in Council Tax chargeable dwellings

	Customer numbers (chargeable) – percentage growth
1996 – 97	0.62%
1997 – 98	0.70%
1998 – 99	0.84%
1999 – 00	0.63%
2000 – 01	0.77%
2001 – 02	0.59%
2002 – 03	0.79%
2003 – 04	0.81%
Average	0.72%

We have assumed that trend growth will continue at 0.7% in both 2006-07 and 2007-08. We have assumed that this will decrease to 0.35% from 2008-09, but that there will also be an additional 15,000 new unmeasured household properties each year (in line with the ministerial objectives and the allowed for capital investment programme).

We summarise our assumptions on both customer numbers and Band D equivalents in Table 8.2.

Table 8.2: Unmeasured household properties customer revenue base

	2005-06	2006-07	2007-08	2008-09	2009-10
Water					
Connected properties	2,201,360	2,216,768	2,232,287	2,255,100	2,277,992
Band D equivalents	1,851,306	1,854,414	1,872,483	1,899,049	1,925,705
Waste water					
Connected properties	2,123,100	2,138,509	2,154,029	2,176,841	2,199,734
Band D equivalents	1,769,222	1,770,664	1,788,738	1,815,308	1,841,969

We consider that consistency in the growth of the number of customers and the ministerial objectives to alleviate development constraints increases transparency for stakeholders. We intend to assess Scottish Water's customer revenue base in the light of its progress in alleviating development constraints.

Measured household customers

Scottish Water has only around 400 measured household customers. Both Scottish Water's second draft business plan and the draft determination assumed that there would be no change in the measured household customer base.

We received no representations on this assumption. We have therefore also assumed that there is no change in the number of Scottish Water's measured household customers during the regulatory control period. We summarise our assumptions in Table 8.3.

Table 8.3: Measured household customer revenue base

	2005-06	2006-07	2007-08	2008-09	2009-10
Water					
Number of connected properties	438	438	438	438	438
Total volume	70,080m ³	70,080m ³	70,080m ³	70,080m ³	70,080m ³
Sewerage					
Number of connected properties	158	158	158	158	158
Total volume	16,591m ³	16,591m ³	16,591m ³	16,591m ³	16,591m ³
Surface water drainage					
Roads drainage – Band D equivalent connected properties	285	285	285	285	285
Property drainage – Band D equivalent connected properties	285	285	285	285	285

Non-household customers

Changes in charging basis for unmeasured customers

Non-household customers can pay either a measured or an unmeasured charge.

Measured charges reflect the customer's meter size, volume of water consumed and waste water discharged. Unmeasured customers pay an annual charge for connection to the network and an additional fixed charge that is a proportion of the rateable value of their property.

Customers who pay on an unmeasured basis can switch to paying on a measured basis (if it is possible to fit a meter). Scottish Water may also opt to require a customer to pay on a measured basis.

Ministers have required Scottish Water to move (as far as is practical) towards full non-household metering by 2010.

In its second draft business plan, Scottish Water explained that it planned to begin the move towards requiring all non-household customers to be metered in 2006, but that it did not intend to require customers to pay

on a measured basis until 2010. Scottish Water believed that some 2,000 customers a year would switch to paying on a measured basis.

The draft determination assumed that no unmeasured customers would switch during the regulatory control period.

Scottish Water's representations noted that it expected its customer revenue base to fall as a result of customers switching to a measured basis of paying. Scottish Water asserted that, if the current trend continued, it expected around 2,000 customers to switch each year, resulting in a reduction in revenue of around £1 million a year. Scottish Water's representations noted that it intended to introduce a charge for installing a meter.

We have reviewed Scottish Water's representations on this subject. We agree that there may still be some customers who would pay less if they switch to a meter. However, we consider that Scottish Water's proposal to install meters, but to continue charging on an unmeasured basis, is impractical. In our view these meters should be used for charging as soon as they are installed.

Additionally, this is important to retail competition. We have therefore set a target that Scottish Water should install meters at the c. 40,000, non-household properties that are not yet metered by 2008. We also consider that Scottish Water should be required to fit meters within one calendar month if a customer wishes to switch retail supplier after 2008.

We note that there will be little change in the relative measured and unmeasured bills as a result of this final determination. Customers do not have any greater incentive to switch to a meter as a result of this final determination.

Prior to the introduction of standing charges to unmeasured customers, around 500 unmeasured customers switched to a meter each year. We have compared the current average unmeasured bill with the average customer's bill if he/she was metered. This comparison is shown in Table 8.4.

Table 8.4: Comparison of average unmeasured customers' bills

	Unmeasured bill	Measured bill
Water	£136.31	£123.36
Variable ³	£231.14	£277.28
Total	£367.45	£400.64
Sewage		
Fixed	£146.80	£123.36
Variable ⁴	£384.89	£415.68
Total	£531.69	£538.98
Total		
Fixed	£283.11	£246.72
Variable	£616.03	£692.90
Total	£899.14	£939.62

We have concluded that the general move to measured charges should increase Scottish Water's revenue. We have, however, assumed that Scottish Water will not benefit from this effect. We have reduced our forecast of water and waste water volumes such that our tariff basket model assumes no revenue benefit as a result of customers switching to a meter.

Our assumption has the effect that if Scottish Water were to increase prices in line with the limits set in this final determination, it would receive more revenue from customers than we have assumed in setting these charge limits. We would expect Scottish Water to use any such additional revenue to phase charge increases for customers (if this is consistent with ministerial policy on the introduction of metering).

Growth in the customer base

We outlined our approach to ensuring that our assumptions on customer growth are consistent with the investment that we have allowed for to meet the ministerial objectives. There is a ministerial objective for Scottish Water to deliver strategic capacity for 2,025 hectares of commercial land during the 2006-10 regulatory control period.

The Commissioner's draft determination, drawing on information provided by Scottish Water, assumed that each hectare of development uses 1,420m³ of water. The Commissioner estimated that each new property

connected would use the average unmeasured water consumption (331m³).

Scottish Water's representations stated that the assumed growth rate in business customers was higher than that seen previously. The representations presented new evidence which suggested that the estimate of zero growth contained in Scottish Water's second draft business plan was pessimistic. Scottish Water suggested a growth rate of around 500 businesses each year.

We intend to assess Scottish Water's customer revenue base in the light of progress in alleviating development constraints. If investment to alleviate development constraints has been committed, we would expect to see a corresponding change in the number of connected customers.

We have decided to change the non-household customer growth assumptions in the draft determination in four ways.

- We have used Scottish Water's latest estimates from its 2004-05 Annual Return: this has increased the average consumption of unmeasured customers from 331m³ to 351m³.
- We have assumed that the benefits of investment in development constraints accrue with a two-year time lag.
- We have used Scottish Water's estimate of underlying growth in the number of new connected businesses.
- We have also assumed that trend growth is halved when we begin to see the benefits of the investment to alleviate development constraints.

We show our assumptions on the number of new non-household customers in Table 8.5.

³ We have based the unmeasured water bill on Scottish Water's projected average rateable value of £8,822. We have based the measured water bill on Scottish Water's forecast unmeasured consumption of 351m³.

⁴ We have based the unmeasured sewerage bill on Scottish Water's projected average rateable value of £9,186. We have based the measured water bill on Scottish Water's forecast unmeasured consumption of 334m³.

Table 8.5: New non-household customers

	2006-07	2007-08	2008-09	2009-10
Trend growth	500	500	250	250
Investment to increase capacity	0	0	2,000	2,000

Changing demand patterns

Scottish Water's representations raised concerns with regard to the Commissioner's assumptions about the likely decline in water use.

We have reviewed the assumptions of both the Commissioner and Scottish Water. This comparison is shown in Table 8.6. We have looked carefully at Scottish Water's second draft business plan, its resubmitted information and the Commissioner's draft determination.

Table 8.6: Annualised volumetric assumptions about customers with a meter greater than 20mm (percentage change 2005-06 to 2009-10)⁵

	Scottish Water's original second draft business plan submission (table B8)	Scottish Water's resubmission of B8 tables	Commissioner's draft determination
Water			
0-100 MI/a	0.1%	0.4%	0.0%
100-250 MI/a	-1.4%	-0.9%	-1.3%
250+ MI/a	-5.2%	-5.2%	-1.8%
Overall change	-2.2%	-2.0%	-0.9%
Sewage			
All volumes	0.0%	2.4%	-0.9%

We recognise that Scottish Water has attempted to assess likely water use by larger customers, but we are concerned that this information appears to be out of line with information about water use in England and Wales. Such further declines after the revenue reductions already experienced as a result of Scottish Water's data cleansing exercise seem unlikely.

We have concluded that, in the absence of more robust evidence, we should allow for a slightly above trend decline in water use. We have decided to use the same

assumptions as the Commissioner in his draft determination.

Unmeasured non-household customers

We outline our forecast of Scottish Water's unmeasured non-household customer base in Table 8.7.

Table 8.7: Projected non-household unmeasured customer base

	2005-06	2006-07	2007-08	2008-09	2009-10
Water					
Number of connections	48,210	26,516	4,821	0	0
Rateable value	£425.3m	£233.9m	£42.5m	£0.0m	£0.0m
Waste water					
Number of connections	45,547	23,852	2,157	0	0
Rateable value	£418.4m	£219.1m	£19.8m	£0.0m	£0.0m

The final determination has allowed for a significant reduction in revenue from unmeasured non-household customers. This reflects the expected switch to full metering.

Measured non-household customers

We outline our forecast of Scottish Water's measured non-household customer base in Table 8.8.

⁵ Scottish Water also raised concerns about declines in volumes of water consumed by customers with a 20mm meter. However, we cannot distinguish effects of meter switching and volumes declined.

Table 8.8: Projected non-household measured customer base

	2005-06	2006-07	2007-08	2008-09	2009-10
Water					
Number of meters					
20mm or less	69,324	91,518	113,713	121,034	123,534
Greater than 20mm	8,080	8,083	8,083	8,083	8,083
Total number of meters	77,404	99,601	121,796	129,117	131,617
Volumes					
20mm meter, volumes less than or equal to 25m ³	1,485,000m ³	2,039,868m ³	2,594,736m ³	2,777,762m ³	2,840,262m ³
20mm meter, volumes greater than 25m ³	30,365,000m ³	36,574,556m ³	42,784,112m ³	44,942,791m ³	45,757,791m ³
Greater than 20mm meter, volumes less than or equal to 100,000m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³	55,536,656m ³
Greater than 20mm meter, volumes of greater than 100,000m ³ but less than or equal to 250,000m ³	10,697,991m ³	10,560,446m ³	10,424,669m ³	10,290,637m ³	10,158,329m ³
Greater than 20mm meter, volumes of greater than 250,000m ³	50,288,304m ³	49,383,115m ³	48,494,219m ³	47,621,323m ³	46,764,139m ³
Total volume	148,372,95m³	154,094,64m³	159,834,39m³	161,169,17m³	161,057,17m³
Sewage					
Number of meters					
20mm or less	48,112	70,307	92,501	97,159	99,659
Greater than 20mm	3,257	3,257	3,257	3,257	3,257
Total number of meters	51,369	73,564	95,758	100,416	102,916
Volumes					
20mm meter volumes less than or equal to 23.75m ³	1,024,946m ³	1,506,214m ³	2,033,339m ³	2,143,953m ³	2,203,328m ³
20mm meter volumes greater than 23.75m ³	16,611,000m ³	23,359,650m ³	30,108,300m ³	31,539,623m ³	32,315,248m ³
Volume discharged for all other meter sizes	24,874,650m ³	24,656,480m ³	24,442,090m ³	24,231,412m ³	24,024,382m ³
Total volume discharged	42,510,596m³	49,522,345m³	56,583,729m³	57,914,988m³	58,542,958m³

Secondary revenue

Scottish Water's representations argued that the Commissioner had overestimated secondary revenue in his draft determination. Scottish Water suggested that we should use 2004-05 actual revenue. We have taken account of Scottish Water's representations (and subsequent clarifications) on secondary revenue. We discuss this further in Chapter 35.

Analysis of our forecast of Scottish Water's customer revenue base

Scottish Water's representations set out its view of the impact of the customer revenue assumptions underpinning the draft determination.

We have attempted to replicate Scottish Water's analysis. This is shown in Table 8.9. Our comparisons use 2005-06 actual tariffs. We understand that Scottish Water used the draft determination tariffs for 2009-10. This explains some of the difference in the comparisons between the second draft business plan and the draft determination.

Table 8.9: Comparison between Scottish Water's second draft business plan, the draft determination and our final determination

	Scottish Water's response: difference between second draft business plan and draft determination (2009-10)	Our analysis: difference between second draft business plan and draft determination (2009-10)	Our analysis: difference between second draft business plan and final determination (2009-10)
Net business growth	£14.0m	£14.2m	£9.2m
Volume decline	£3.0m	-£2.3m	-£2.3m
Net household growth	£6.0m	£6.0m	£12.7m
Switching assumptions	£4.0m	£4.0m	£4.0m
Meter profile (number of larger meters)	N/a	-£5.2m	-£5.2m
Initial customer revenue base: surface drainage	N/a	£12.1m	£12.5m
Other small non-household customers ⁶	N/a	-£2.2m	-£1.7m
Total	£27.0m	£26.5m	£29.1m

⁶ Caused mainly by initial revenue base assumptions.

The three main reasons for the differences between Scottish Water's second draft business plan and the draft and final determinations are the:

- different growth assumptions;
- different unmeasured to measured switching assumptions; and
- different starting points.

We explained our approach to growth assumptions above. We have forecast faster growth in household connections and slightly slower growth in non-household connections than the Commissioner assumed. Overall, the final determination has forecast slightly more growth in the customer base.

We have taken a different approach in assessing the potential impact of customers switching to a meter. However, we have reached the conclusion that there is not likely to be any reduction in revenue because of customers switching to meters. Our approach does not materially impact the revenue base assumed by the Commissioner.

We have noted that many of the differences between the draft determination and Scottish Water's second draft business plan result from the resubmitted customer base. It is worth noting, however, that both the draft and final determinations assume less volumetric revenue than Scottish Water included in its second draft business plan. We compare assumed volumetric revenue in Table 8.10.

Table 8.10: Comparison of volumetric revenue in 2009-10⁷ from customers with a meter larger than 20mm

	Second draft business plan	Final determination	Difference
Water	£57.9m	£59.4m	£1.5m
Waste water	£32.1m	£28.3m	-£3.8m
Total	£90.1m	£87.7m	-£2.3m

Summary

This chapter has summarised our conclusions concerning the initial customer revenue base and the change that is likely to occur during the regulatory control period. In coming to these conclusions we have had regard to the ministerial objective of alleviating development constraints.

We recognise that we have made a number of material assumptions that are different from those that Scottish Water used in its second draft business plan. The most material of these relate to growth in the customer base. We are, however, confident that our assumptions are consistent both with the ministerial objectives and Scottish Water's investment plan.

We consider that Scottish Water has to improve its management of customer revenue. It should be a priority for Scottish Water to examine its network and ensure that it is billing each connected property.

⁷ Assessed using 2005-06 tariffs.

Section 3: Operating costs

Chapter 9: Introduction

Introduction

Our core function is to promote the interests of both current and prospective customers of Scottish Water's core business. We do this by ensuring that Scottish Water delivers ministerial objectives for the lowest reasonable overall cost.

In setting charges we allowed for the level of operating cost that we consider Scottish Water should incur in providing the required level of service to customers. Operating costs have a direct impact on the charges that customers pay. These costs comprise day-to-day running costs, as opposed to capital investment or financing costs. Operating expenditure therefore includes the following:

- employment costs;
- electricity and other utility costs;
- local authority rates and other taxes;
- software licences and vehicle running costs;
- the cost of billing and serving customers (including bad debt); and
- the cost of buying materials, such as chemicals for water treatment.

Operating expenditure does not include depreciation or capital maintenance costs. It does include normal, 'reactive' maintenance costs.

In this section, we outline how we have determined the maximum total operating costs that we have allowed for in the final determination. In setting Scottish Water's charges, the allowed for total operating costs includes both 'base' operating costs (those costs required to deliver the current level of service) and 'new' operating costs (those costs that reflect improvements in customer service, public health compliance and environmental performance beyond that assumed in our benchmarking). We have also included some additional operating costs to improve customer service, address

leakage and to ensure that Scottish Water does not feel constrained by operating cost efficiency targets to adopt an expensive capital solution. We compare the profile of operating costs with the experience of the water and sewerage companies south of the border.

As operating costs represent a substantial proportion of customers' bills, we have scrutinised these costs with particular care. We have determined an allowed for level of operating expenditure that is sufficient, but no more than sufficient, for Scottish Water to provide customers with a standard of service in line with the average south of the border. As part of our assessment, we have reduced the allowed for operating costs to reflect the scope for Scottish Water to improve its efficiency.

Structure of this section

In this section, we explain the level of operating cost that we have allowed for in setting charges. We believe that this is sufficient for Scottish Water to provide the required level of service to customers. The section comprises six chapters:

- Chapter 9 is this introduction.
- Chapter 10 summarises the level of operating costs allowed for by the Water Industry Commissioner for Scotland in his draft determination.
- Chapter 11 outlines new information that has become available since the Commissioner published his draft determination.
- Chapter 12 summarises Scottish Water's representations on the level of operating costs allowed for in the draft determination.
- Chapter 13 summarises representations from other stakeholders.
- Chapter 14 outlines the level of operating costs we have allowed for following our review of the level of operating costs allowed for in the draft determination and the representations from stakeholders.

Chapter 10:

Conclusions of the draft determination

Introduction

In this chapter, we summarise the approach the Commissioner used to determine the maximum total operating costs that he allowed for in setting Scottish Water's maximum charges in the draft determination.

His analysis of the maximum total operating costs included both 'base' operating costs (those costs required to deliver the current level of service) and 'new' operating costs (those costs that reflect improvements in customer service, public health compliance and environmental performance beyond those assumed in the Commissioner's benchmarking). The Commissioner compared the resulting profile of operating costs with the experience of the water and sewerage companies in England and Wales.

The Commissioner's allowed for operating costs were reduced to reflect his assessment of the scope for improvement in efficiency. 'Efficiency' means delivering the same level of service for less money. The Commissioner stressed that efficiencies, by definition, could not result in lower levels of service.

The Commissioner explained that Scottish Water appeared likely to achieve the target for operating costs that he had set at the last Strategic Review. This was to reduce operating costs to £265 million by the end of March 2006. This would represent a reduction of some £145 million in real terms over four years. The Commissioner welcomed this improvement in Scottish Water's operating cost efficiency.

Background to the Commissioner's assessment of the scope for operating cost efficiency

Operating expenditure comprises day-to-day running costs, as opposed to capital investment or financing costs. Operating expenditure therefore includes employment costs, electricity, materials, hired and

contracted costs, local authority rates, insurance, software licences and vehicle running costs. Bad debt is also regarded as an operating cost. Operating expenditure does not include depreciation or capital maintenance costs. It does include normal 'reactive' maintenance costs.

The Commissioner used Scottish Water's June Return¹ to analyse operating costs by both function and activity. This Return defines functions and activities in the same way as the equivalent return that is submitted to Ofwat each year by the companies in England and Wales. The analysis of expenditure by function provides information about how much it costs to provide a particular service. The analysis by activity shows the cost of each activity that makes up a service. In order to make reliable like-for-like comparisons, the Commissioner needed to understand the factors that could influence the level of costs incurred by water and sewerage companies in the UK. He explained that these factors can typically be divided into those that are broadly controllable by management ('internal' factors) and those that are outside the control of management ('external' factors).

The Commissioner identified a number of external factors that could affect the costs of the water and sewerage industry. They included:

- the difficulty of the operating environment (eg population density, topography, types of water source, etc);
- customer mix;
- customer requirements (issuing bills, etc);
- environmental requirements (eg sewage effluent standards);
- volumes (water consumption, peak use, sewage loads);
- nature of the assets operated and maintained in the short to medium term (size, mix, performance);

¹ The June Return is an annual information submission that Scottish Water submits each year. The Return contains information about all aspects of Scottish Water's business and is the most comprehensive information submission that the regulator collects. The Return was described in more detail in Volume 1, Chapter 3 of the methodology document, 'Our work in regulating the Scottish water industry: Setting out a clear framework for the Strategic Review of Charges 2006-10'.

- regional variations in charges for local authority rates, water abstraction and sewage discharges;
- regional variations in services, such as mains diversions and sewer diversions ('third party' services); and
- regional variations in market rates for salaries, electricity or other costs.

The Commissioner also identified some factors that are within the control of management. These included:

- the organisation's remuneration policy;
- the organisation's policy regarding use of permanent or temporary employees;
- the organisation's policy regarding purchasing and stocks of materials and consumables; and
- improvements in productivity.

The Commissioner's assessment of efficiency also considered the level of service that is actually provided. He explained that water and sewerage undertakers in the UK have to provide a minimum standard of service that is expected by stakeholders. This minimum standard of service includes:

- treating drinking water to the minimum standard required by legislation; and
- removing and disposing of effluent in compliance with the minimum standards required by legislation.

An efficient water and sewerage undertaker will carry out the minimum activities necessary to provide the service that customers expect, at the lowest cost.

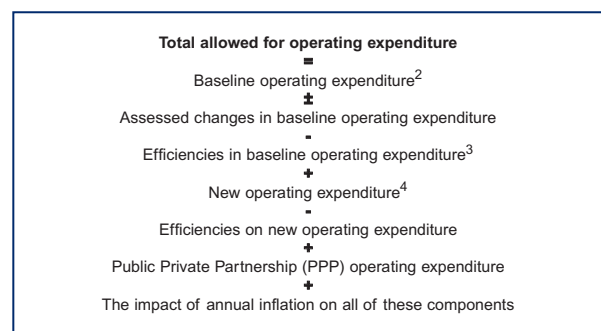
The Commissioner monitored Scottish Water's progress in improving its efficiency. He took account both of costs and of the level of service that was provided to customers. The Commissioner made it clear that if Scottish Water were to cut costs but at the same time

lower the level of service to customers, this would not be regarded as an efficiency. The Commissioner explained that Scottish Water must at least maintain service to customers at the same time as cutting costs. He noted that this view of efficiency was consistent with the approach taken by other utility regulators in the UK.

Approach to setting allowed for operating costs in the Strategic Review of Charges 2006-10

The Commissioner set targets in his draft determination in terms of the total allowed for operating expenditure (excluding depreciation). He set the total allowed for operating expenditure at a level that he believed was sufficient for Scottish Water to carry out its operations for each year of the regulatory control period and to meet all of the 'essential' and 'desirable' objectives of the Scottish Ministers. Figure 10.1 summarises how the Commissioner calculated the allowed for level of operating costs.

Figure 10.1: The calculation of the allowed for level of operating costs



The Commissioner considered baseline operating expenditure, new operating costs and the scope for efficiency in turn.

Establishing a baseline for operating costs

The Commissioner explained that the baseline level of operating costs was the expenditure incurred in the base

² See Chapter 6, Volume 6 of the draft determination for more information about how baseline operating costs were calculated and how any necessary adjustments were made.

³ See Chapters 8, 9 and 10 of Volume 6 of the draft determination for more information about how the Commissioner calculated the efficiency gap.

⁴ See Chapter 7, Volume 6 of the draft determination for more information about new operating costs.

year for the draft determination. He assessed the scope for efficiency savings and intended to monitor Scottish Water's performance against this baseline.

The Commissioner explained that he identified one base year for each regulatory control period. Scottish Water's performance in each year of the regulatory control period would then be monitored against the level of service delivered in that base year. The Commissioner decided to use 2003-04 as the base year for his draft determination. He considered that this would make performance monitoring more transparent and that it would better reflect Scottish Water's current operating environment, since it used the most up-to-date operating costs available⁵.

The Commissioner used information from Scottish Water's regulatory accounts for 2003-04 and the June Return 2004 to calculate the level of baseline operating costs in 2003-04.

To establish the level of baseline operating costs for 2003-04, the Commissioner:

- took reported core costs;
- adjusted for atypical costs (or savings);
- removed exceptional costs; and
- ensured that cost allocation practices were consistent with those in England and Wales.

The Commissioner's calculation of baseline expenditure is shown in Table 10.1.

Table 10.1: Calculation of base operating expenditure 2003-04

Water operating expenditure		£m
Less:		£198.4m
	PPP costs	£0.0m
	Exceptionals	£31.7m
		<u>£166.7m</u>
Sewerage operating expenditure		£262.4m
Less:		£111.5m
	PPP costs	£21.2m
	Exceptionals	
		<u>£129.7m</u>
Atypicals		0
Capitalisation adjustments		0
Base operating expenditure		<u><u>£296.5m</u></u>

The Commissioner explained that in setting the baseline for the draft determination he was using the most recent information available. He noted that for the final determination it would be possible to update this analysis of baseline expenditure to 2004-05.

The Commissioner outlined how he had taken account of potential changes in operating costs during the regulatory control period. He explained that he had paid regard to any such potential changes that were outside the control of management and not reflected in consumer price inflation. Such changes could include non-household rates, pension costs, and energy costs.

The Commissioner analysed these factors in some detail to ensure that Scottish Water had, in his view, sufficient resources to deliver an appropriate level of service.

In its second draft business plan, Scottish Water claimed that it faced a number of unavoidable increases in operating costs. The Commissioner set out the additional costs that Scottish Water claimed. These are shown in Table 10.2.

⁵ This issue was discussed in more detail in Volume 4 of the Water Industry Commissioner's methodology document for the Strategic Review of Charges 2006-10.

Table 10.2: Unavoidable operating cost increases claimed in Scottish Water's second draft business plan (2003-04 prices)

Factor:	Claimed costs			
	2006-07	2007-08	2008-09	2009-10
Non-domestic rates	£4.2m	£5.7m	£7.3m	£7.3m
Pension costs	£5.1m	£5.1m	£5.1m	£5.1m
Energy costs	£2.4m	£2.4m	£2.4m	£2.4m
Bad debt	£4.5m	£10.8m	£19.5m	£30.2m
Retail business operating costs	£2.5m	£3.4m	£8.6m	£8.7m
Other costs eg the landfill tax	£1.6m	£1.9m	£2.2m	£2.5m
SEPA	£4.6m	£4.6m	£4.6m	£4.6m
Total	£24.9m	£33.8m	£49.6m	£60.8m

The Commissioner explained that he had analysed Scottish Water's claims carefully. The additional baseline operating costs that he allowed for are shown in Table 10.3.

Table 10.3: Allowed for additions to base operating cost 2006-10 (2003-04 prices)

Factor:	Allowed for costs:			
	2006-07	2007-08	2008-09	2009-10
Non-domestic rates	£3.8m	£5.2m	£6.7m	£6.7m
Pension costs	£5.1m	£5.1m	£5.1m	£5.1m
Energy costs	£1.0m	£1.0m	£1.0m	£1.0m
Bad debt	£0.0m	£0.0m	£0.0m	£0.0m
Retail business operating costs	£0.0m	£0.0m	£0.0m	£0.0m
Other costs eg the landfill tax	£0.0m	£0.0m	£0.0m	£0.0m
SEPA	£0.0m	£0.0m	£0.0m	£0.0m
Reporter	£0.3m	£0.3m	£0.3m	£0.3m
Total	£10.2m	£11.6m	£13.1m	£13.1m

Table 10.4 summarises the baseline that the Commissioner established.

Table 10.4: Summary of the operating cost baseline 2006-10 (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Base operating costs (water)	£166.7m	£166.7m	£166.7m	£166.7m
Increase in operating costs – water	£7.5m	£8.9m	£10.4m	£10.4m
Base operating costs – waste water	£129.7m	£129.7m	£129.7m	£129.7m
Increase in operating costs – waste water	£2.8m	£2.8m	£2.8m	£2.8m
Total base operating costs	£306.7m	£308.1m	£309.6m	£309.6m

New operating costs

The Commissioner noted that, during the 2006-10 regulatory control period, Scottish Water would incur new operating expenditure to deliver improvements in:

- environmental compliance;
- drinking water compliance;
- levels of service to customers; and
- the supply/demand balance.

The Commissioner explained that, in setting charges, he was interested specifically in net new operating expenditure. He illustrated net new operating expenditure with an example:

- New legislation requires a water and sewerage undertaker to achieve higher standards of effluent discharge. A sewage treatment works is already in place, but the treatment processes employed will not meet the new required standards, so the plant needs to be replaced. Currently, the works incurs £50,000 a year in operating expenditure. The new compliant treatment processes will incur £75,000 a year in operating expenditure. The new operating expenditure is the difference between the post-investment level of operating expenditure and the pre-investment level (ie £75,000 less £50,000). Net new operating expenditure is therefore £25,000 per year.

The Commissioner noted that new operating expenditure can place an upward pressure on customers' bills. He therefore considered that it was important for Scottish Water to provide a clear justification for any new operating costs that it expected to incur. The Commissioner explained that he would scrutinise any such claims in significant detail, as customers should not be expected to pay for unnecessary or inefficient levels of new operating expenditure.

In its second draft business plan, Scottish Water submitted a total claim for new operating expenditure of £37 million by 2009-10, before efficiencies. The Commissioner set out Scottish Water's claim, as shown in Table 10.5.

Table 10.5: Scottish Water's claimed new operating expenditure (pre-efficiency) 2006-10

	2006-07	2007-08	2008-09	2009-10
Water	£0.9m	£4.2m	£6.3m	£28.1m
Waste water	£1.9m	£3.3m	£5.1m	£9.1m
Total	£2.8m	£7.5m	£11.4m	£37.2m

The Commissioner examined Scottish Water's claim in detail⁶. His analysis led him to believe that he should not allow the level of new operating expenditure claimed by Scottish Water. He put forward several reasons for this.

- The companies in England and Wales in 2003-04 were already delivering enhanced water quality standards and, as such, this cost was already included in the Commissioner's benchmarking of relative efficiency.
- The Commissioner had also concluded in his review of the capital programme that many of the proposed solutions were over-scoped and, as such, were likely to incur higher operating costs than necessary.
- The Commissioner's analysis also indicated that Scottish Water should incur lower new operating costs for waste water. This reflected the Commissioner's investment review and his analysis of the expected completion dates of projects.

⁶ See Chapter 7 of Volume 6 of the draft determination for further information.

⁷ Totals may not add exactly due to rounding.

⁸ A revised suite of models was originally published in January 2004, but these were subsequently revised in light of the companies' June 2004 submissions.

The Commissioner concluded that he should allow for annual new operating expenditure of £12.2 million (in 2003-04 prices) by 2009-10. He set out in detail the operating costs that he had allowed, and these are shown in Table 10.6.

Table 10.6: Allowed for level of new operating expenditure (pre-efficiency) 2006-10⁷ (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Water	£0.2m	£0.6m	£1.4m	£6.9m
Waste water	£0.9m	£2.3m	£3.3m	£5.4m
Total	£1.1m	£3.0m	£4.7m	£12.2m

Establishing the operating cost efficiency gap – the Ofwat models

The Commissioner used Ofwat's econometric models to compare Scottish Water's performance against that of the companies in England and Wales.

Ofwat uses a top-down approach to benchmarking the English and Welsh companies and setting efficiency targets. It employs econometric modelling, a method that uses regression analysis to establish a relationship between the costs incurred by the companies and a number of cost drivers. These cost drivers take account of both engineering and economics.

Ofwat and Professor Mark Stewart of the University of Warwick developed the econometric models in the early 1990s. In January 2005, Ofwat⁸ published the models that it used for its 2004 final determination. The models are broadly similar to those published by Ofwat in January 1999.

The purpose of each model is to establish a relationship between the costs reported by the companies and external cost drivers. These cost drivers have a significant impact on costs but are outside the control of the management of the company.

The models take different forms and are summarised in Table 10.7.

Table 10.7: Summary of econometric models and explanatory factors

Model	Model type	Explanatory factors
Water resources and treatment	Linear model for unit cost	Population, number of sources, distribution input, proportion of supplies from rivers.
Water distribution	Log unit cost	Population, proportion of total mains length with diameter > 300mm.
Water power	Log linear	Distribution input, average pumping head.
Water business activities	Log linear	Number of billed properties.
Sewer network	Log linear	Sewer length, area, resident population, holiday population.
Large sewage treatment works	Log linear	Total load, use of activated sludge treatment, tight effluent consent for both suspended solids and BOD5.
Small sewage treatment works	Unit cost	Works size, works type, load.
Sludge treatment and disposal	Unit cost	Weights of dry solids, disposal route.
Sewerage business activities	Unit cost	Number of billed properties.

Criticisms of the models

As part of its first draft business plan, Scottish Water submitted a number of papers by academics and consultants criticising the Ofwat econometric models. The majority of the papers that Scottish Water submitted were written for the water and sewerage companies in England and Wales or Water UK, the industry trade body. These papers were submitted to Ofwat, two of them at the 1999 price review⁹ and the remainder in the run up to the 2004 price review. Only one paper specifically addressed the use of econometric models in Scotland.

The criticisms that the Commissioner considered to be relevant to his analysis of Scottish Water's relative efficiency were as follows:

- the choice of explanatory factors and type of model;
- the use of ordinary least squares (OLS) regression, as opposed to other methods of assessing relative efficiency;

- the assumption that the residual represents inefficiency only and that this can then be used to set efficiency targets for the water and sewerage companies; and
- the application of models to Scottish Water that were derived using information from the companies south of the border.

The Commissioner addressed each of the criticisms in turn.

The most common criticism of the models was that they did not accurately reflect the true cost drivers in the water and sewerage industry. The Commissioner explained that Ofwat had consulted with the companies south of the border and had tested alternative models. He noted that Ofwat had provided information to the companies on these alternatives, but had concluded that any improvement in the explanatory power of the models was insufficient to justify a move away from the original models.

A number of commentators have criticised Ofwat's use of OLS regression to assess relative efficiency. Ofwat commissioned Europe Economics to consider alternatives to the OLS approach. Europe Economics used data envelopment analysis and stochastic frontier analysis. The Commissioner commented that Ofwat had noted that, while the results of the alternative approaches were different in a number of respects, the overall picture had been similar and, in most cases, there had been a high degree of correlation between the results of all three methods¹⁰.

The third key criticism of the models was that the residual from the econometric analysis should not be interpreted wholly as representing efficiency. In a report for Water UK¹¹, Professor John Cubbin broke down the residual between six factors: omitted variables, poor proxy, sampling error, measurement error, mathematical form and efficiency. The author carried out his analysis for each of the nine operating expenditure models and the nine capital maintenance expenditure models. He concluded that for the operating expenditure models,

⁹ Davidson 'Ofwat Efficiency Assessments Using Econometric Models: A Comment', 1999 and Montgomery Watson 'Water distribution cost drivers', 1999.

¹⁰ Ofwat, 'Water and sewerage service unit costs and relative efficiency: 2001-02 report', December 2002.

¹¹ Professor John Cubbin, 'Assessing Ofwat's efficiency econometrics', March 2004.

efficiency accounts for around 40% of the residual on the water service and around 50% of the residual on the sewerage service.

The Commissioner explained that Ofwat had reviewed the paper and concluded that uncertainties of this scale were unlikely under normal operating circumstances¹². In particular, the Commissioner noted that several elements in his use of the econometric models should allay Scottish Water's concerns regarding the results of the analysis. The Commissioner followed Ofwat's lead in recognising the potential for errors in information and adjusted the residuals downwards to reduce the impact of any such errors. The Commissioner adjusted the water service residual by 10% and the sewerage service residual by 20%. He also took into account company-specific factors that may reduce a company's residual by a significant amount.

The Commissioner also set out in some detail the conclusions of Professor Cubbin with regard to the use of the econometric models in assessing Scottish Water's relative efficiency. Professor Cubbin examined each of the Ofwat models in detail and set out the reasons why he thought that the models were less suitable for application to Scottish Water. The Commissioner considered that these reasons appeared to relate to differences between the operating environments in Scotland and in England and Wales. Table 10.8 sets out the operational factors which Professor Cubbin believed had an impact on each of the models.

Table 10.8: Issues raised by Professor Cubbin regarding the use of Ofwat's econometric models to calculate Scottish Water's relative efficiency

Model	Issues
Water distribution	Rurality: travel costs, electricity, number of service reservoirs
Water resources and treatment	Sources; size of treatment plant; raw water quality
Water power	Electricity distribution costs; non-pumping costs
Water business activities	Cryptosporidium testing; bad debt
Sewer network	Lateral sewers; possibly age and condition of assets
Large sewage treatment works	Possibly electricity costs
Small sewage treatment works	Very small works; deep rural effect; possibly septic tanks effect
Sludge treatment and disposal	Sparsity; specialised sludge treatment works
Sewerage business activities	Bad debt

¹² Ofwat, 'Future water and sewerage charges 2005-10: Final determinations', December 2004.

Scottish Water's efficiency

The Commissioner set out the results of his analysis of Scottish Water's efficiency in 2003-04. The results are reproduced in Table 10.9. He presented his results for the water and sewerage services separately.

The Ofwat econometric models generate a series of efficiency scores calculated from the residuals in the statistical analysis. The Commissioner compared these residuals in order to establish the relative efficiency of Scottish Water and of the companies south of the border.

The Commissioner adjusted the efficiency scores such that the average score in England and Wales was 100. The Commissioner's results did not at this stage take into account residual adjustments, any special factors or differences in the level of service provided to customers.

Table 10.9: Scottish Water's efficiency scores 2003-04

	Efficiency score
Water service	112
Sewerage service	130

The Commissioner calculated the efficiency gap as follows: using the average water service as an example, Scottish Water's efficiency score was 112 and that of the average was 100. The gap was calculated as $((112-100)/112)*100$.

The Commissioner identified that the benchmark company for the water service in England and Wales was Wessex Water. For the sewerage service, the benchmark company was Yorkshire Water.

Table 10.10 sets out the Commissioner's findings. The efficiency gap between Scottish Water and the benchmark companies was around 30%.

Table 10.10: Scottish Water's efficiency gaps

	Efficiency gap
Average – water service	11%
Wessex – water service	30%
Yorkshire – water service	26%
Average – sewerage service	23%
Wessex – sewerage service ¹³	39%
Yorkshire – sewerage service	34%
Average – combined	16%
Wessex – combined	34%
Yorkshire – combined	29%

As noted earlier, the Commissioner applied the Ofwat residual adjustments in assessing Scottish Water's relative efficiency. Table 10.11 shows that even after the adjustments to the residuals were made, the efficiency gap between Scottish Water and the average in England and Wales was around 15%. The gap between Scottish Water and the benchmark companies in England and Wales was around 25% to 30%.

Table 10.11: Scottish Water's efficiency gaps after adjustments of the residuals

	Efficiency gap
Average – water service	10%
Wessex – water service	28%
Yorkshire – water service	23%
Average – sewerage service	19%
Wessex – sewerage service	33%
Yorkshire – sewerage service	29%
Average – combined	14%
Wessex – combined	30%
Yorkshire – combined	26%

Establishing the operating cost efficiency gap – the modified Ofwat models

The Commissioner repeated his econometric analysis using recalculated versions of the Ofwat models. He reworked the Ofwat models to include information from Scottish Water in 2003-04. The Commissioner excluded information about the costs, customers served and the asset bases of Scottish Water's PPP contracts since he

recognised that Scottish Water could not control the operating costs at PPP works.

The results of the Commissioner's analysis are shown in Table 10.12. This table also includes the results of the Commissioner's original analysis using the Ofwat models. The Commissioner showed Scottish Water's relative efficiency in the water service and sewerage service separately.

Table 10.12: Results of the Commissioner's relative efficiency modelling

	Efficiency score – Ofwat models	Efficiency score – extended models
Water service	112	112
Sewerage service	130	127

The Commissioner noted that Scottish Water's level of efficiency appeared to be slightly better when he used the modified models. Table 10.13 shows the efficiency gap between Scottish Water and the average in England and Wales and between Scottish Water and the two benchmark companies. Table 10.13 also includes the results of the Commissioner's analysis using the unadjusted models. As Table 10.13 shows, the efficiency gap between Scottish Water and the benchmark companies was still around 30%, even when the Commissioner used the modified models.

Table 10.13: Scottish Water's efficiency gaps

	Efficiency gap – Ofwat models	Efficiency gap – extended models
Average – water service	11%	11%
Wessex – water service	30%	30%
Yorkshire – water service	26%	26%
Average – sewerage service	23%	21%
Wessex – sewerage service	39%	38%
Yorkshire – sewerage service	34%	33%
Average – combined	16%	15%
Wessex – combined	34%	33%
Yorkshire – combined	29%	29%

The Commissioner presented the results of his efficiency analysis after the adjustments to residuals.

¹³ The reason that there is a larger efficiency gap to Wessex than Yorkshire on the sewerage service is that, at this stage in his analysis, the Commissioner has not taken into account either special factors or pension adjustments.

The results are shown in Table 10.14. He noted that the efficiency gap between Scottish Water and the average in England and Wales was around 14%. The gap between Scottish Water and the benchmark companies in England and Wales was around 25% to 30%.

Table 10.14: Scottish Water's efficiency gaps after residual adjustments

	Efficiency gap – Ofwat models	Efficiency gap – extended models
Average – water service	10%	10%
Wessex – water service	28%	27%
Yorkshire – water service	23%	23%
Average – sewerage service	19%	18%
Wessex – sewerage service ¹⁴	33%	32%
Yorkshire – sewerage service	29%	28%
Average – combined	14%	13%
Wessex – combined	30%	29%
Yorkshire – combined	26%	25%

Establishing the operating cost efficiency gap – the Commissioner's alternative model

In line with the approach of the Competition Commission, the Commissioner explained that he considered it appropriate to develop another model to assess the scope for efficiency, using a different approach¹⁵.

The Commissioner originally developed the alternative model as part of the Strategic Review of Charges 2002-06. He considered that the alternative model represented a useful check on the results of the econometric modelling.

In preparation for the draft determination, the Commissioner reviewed both the cost drivers included in, and the structure of, the model. He developed two versions, one which used information from the ten water and sewerage companies in England and Wales; and a second, which also included management information from Scottish Water.

The Commissioner used both versions of the alternative model to assess Scottish Water's relative efficiency. He noted that both versions used a fundamentally different approach to Ofwat's econometric models.

The results of the Commissioner's analysis are shown in Table 10.15. This table includes the results of his analysis for both versions of the alternative model. It also includes the results for the water and sewerage services separately.

Table 10.15: Scottish Water – analysis of performance using the alternative model

	Efficiency score – England & Wales based alternative model	Efficiency score – alternative model including Scottish Water
Water service	110	115
Sewerage service	130	129

The Commissioner noted that the results of his analysis suggested that the absolute performance of Scottish Water appeared to be slightly worse when he used the alternative model, although the difference was not significant. However, the Commissioner's analysis focused on Scottish Water's efficiency relative to the companies in England and Wales. Table 10.16 shows the efficiency gap between Scottish Water, the average in England and Wales and the two benchmark companies – Wessex Water on the water service and Yorkshire Water on the sewerage service¹⁶. Table 10.16 also shows the results of the Commissioner's analysis using the revised Ofwat econometric models.¹⁷

Table 10.16: Scottish Water's efficiency gap

	Efficiency gap – revised Ofwat econometric models	Efficiency gap – alternative model including Scottish Water
Average – water service	10%	13%
Wessex – water service	27%	39%
Yorkshire – water service	23%	24%
Average – sewerage service	18%	22%
Wessex – sewerage service	32%	39%
Yorkshire – sewerage service	28%	40%
Average – combined	13%	17%
Wessex – combined	29%	39%
Yorkshire – combined	25%	31%

¹⁴ The reason that there is a larger efficiency gap to Wessex than Yorkshire on the sewerage service is that at this stage in his analysis, the Commissioner had not taken into account either special factors or pension adjustments.

¹⁵ The Competition Commission's consideration of the price limits for Mid Kent Water and Sutton & East Surrey Water Services in 2000.

¹⁶ Ofwat identified Wessex Water and Yorkshire Water as its chosen benchmark companies in its 'Water and sewerage service unit costs and relative efficiency 2003-2004 report'.

¹⁷ The results of the econometric models include adjustments to residuals. These were described in Chapter 8 of Volume 6 of the draft determination.

The results set out in Table 10.16 showed that Scottish Water's relative performance appeared to be worse for both the water service and the sewerage service when the Commissioner assessed Scottish Water's performance using the alternative model. The difference was smaller when the Commissioner looked at relative performance for both water and sewerage together.

Adjustments to the modelled efficiency gap to take account of special factors

The Commissioner's approach to benchmarking was top down. It looked at the overall level of costs that Scottish Water incurs and compared this with the costs incurred by the companies south of the border. The Commissioner's approach recognised that costs are influenced by the conditions in which a company operates.

The Commissioner explained that it was not possible to include every factor that might have an impact on the companies' costs. Even if it were possible to identify every factor that influences a company's costs, such an approach would be impractical. The models would become too complex and it is likely that many of the factors would add little to stakeholders' understanding of the appropriate level of costs.

The Commissioner did, however, make it clear that he wanted his analysis to be as complete as possible and to compare like with like. He considered it important, therefore, to identify any special factors that would affect Scottish Water's operating costs (either causing them to be higher or lower) that were not captured by the models. The Commissioner asked Scottish Water to draw such factors to his attention.

In assessing special factors for Scottish Water, the Commissioner used the same approach as Ofwat uses for the companies in England and Wales. Scottish Water had to provide evidence in the following areas in order to justify a special factor.¹⁸

1. What is the justification of the special circumstances that demonstrate a material difference from industry norms? Scottish Water had to explain how the

special factors were the result of special obligations, the character of all or part of its customer base, or the result of historical development of the water and sewerage systems in its area of supply.

2. What is the quantification of the impact of the special factors that demonstrate a net additional effect on Scottish Water's costs over and above that which would be incurred without these factors?
3. What has Scottish Water done to manage the additional costs arising from the special factors and to limit their impact?
4. Are there other special factors that reduce costs relative to industry norms? If so, have these been quantified and offset against the upward cost pressures?

The Commissioner noted that Scottish Water had provided him with three submissions which claimed that special factors resulted in higher operating costs than those predicted by the econometric models. The three submissions were:

- Scottish Water special factors submission as part of the Annual Return, June 2004;
- special factors submitted with Scottish Water's first draft business plan, October 2004; and
- special factors submitted with the second draft business plan, April 2005.

These are each examined below.

Annual Return June 2004

Scottish Water provided its initial evidence on special factors in its Annual Return of June 2004. Scottish Water argued that the following special factors caused it to incur a higher level of operating expenditure than could be justified by the Commissioner's benchmarking.

¹⁸ These questions are adapted from Ofwat's letter to Regulatory Directors, RD35/98, 1998, available at: www.ofwat.gov.uk.

Geographical

- **Travel costs:** Due to the size of its service area, employees who are working on Scottish Water's assets have to travel long distances. In addition, personnel from areas such as customer service and business, laboratory and contract services have to travel extensively.
- **High number of small treatment works:** According to Scottish Water, the sparsity of the population requires it to operate a relatively large number of treatment works compared with the companies south of the border.
- **'Flashy'¹⁹ supplies:** Scottish Water claimed that many of its treatment works deal with supplies that are difficult to treat due to the changeable nature of the raw water.
- **Electricity:** Scottish Water claimed that in some regions its operating costs are increased due to higher charges (distribution, use of system charges and the tariff itself) than those incurred by the companies in England and Wales. It also claimed that the use of electricity for activities other than pumping is higher in Scotland than in England and Wales and that this was not taken into account in the models.
- **Sludge treatment costs:** Scottish Water indicated that it had to transport sludge greater distances than is the norm in England and Wales (from small rural areas to dedicated sludge treatment centres).

Asset base

- **Leakage:** Scottish Water argued that it had inherited an asset base with a leakage rate that was much higher than the rate in England and Wales. It asserted that this had an impact on costs (due to the need to treat relatively more water per inhabitant), which the models did not take into account.

Economic

- **Household bad debt, billing and metering:** Scottish Water argued that it has a higher level of customer bad debt than that of the companies in England and Wales. It suggested that this was largely due to factors that were outside its control.
- **Purchase of materials:** Scottish Water claimed that there was an additional cost when purchasing materials because most of these were purchased in England and transportation costs were significant.

Legal

- **Sewer laterals:** Scottish Water has a legal responsibility for lateral sewers (the drains that connect customers' properties to the main sewer). In England and Wales these are the customer's responsibility.
- **Freedom of Information Act:** Scottish Water argued that it has to comply with the Freedom of Information Act, whereas the privatised water and sewerage companies do not.
- **Queries from politicians:** Scottish Water argued that as a public body it receives a larger number of enquiries from politicians than the companies in England and Wales, and so incurs additional costs in this area.
- **Removal of phosphorus and nitrates:** Scottish Water indicated that it had to incur higher costs to remove phosphorus and nitrates from sewage effluent than the companies south of the border. This was due to tighter consent conditions imposed by the Scottish Environment Protection Agency.
- **Cryptosporidium standards:** Scottish Water argued that the sampling requirement for cryptosporidium that was imposed by the Drinking Water Quality Regulator was greater than the sampling programmes undertaken by the water and sewerage companies. This led to additional costs.

¹⁹ 'Flashy' conditions are where a greater than or equal to a four-fold change in colour in a 12-hour period can occur.

First draft business plan

Scottish Water provided a 'first draft special factors submission' with its first draft business plan. This set out a revised view of the special factors that might apply to Scottish Water.

In this submission, Scottish Water repeated many of the same special factors that it had suggested in June 2004. In some cases it provided additional evidence to support particular special factors. Scottish Water also identified some new special factors and withdrew others which it now considered to be immaterial. The new factors were as follows:

- **Central regulatory laboratory:** Scottish Water argued that the cost of its central regulatory laboratory was an additional operating cost that was not allowed for in the benchmarking models. This reflected the fact that in England and Wales the capital costs would be included within the current cost depreciation charge. In Scotland, the long-term financing arrangements for the laboratory meant that the cost was included within operating costs.
- **Service reservoirs and water towers:** Scottish Water argued that it had proportionately far more service reservoirs and water towers than the average for companies in England and Wales. It argued that this was a reflection of Scotland's sparse population distribution, its topography and the assets that Scottish Water inherited from the former water authorities.
- **Waterworks sludge disposal:** Scottish Water argued that it faced an additional cost due to the need to dispose of waterworks sludge to landfill rather than farmland. Scottish Water explained that it was not exempt from the Waste Management Licensing Regulations, unlike the companies in England and Wales.

In this submission, Scottish Water also explained that it had undertaken further analysis and now considered that the following factors were not sufficiently material to be considered:

- the additional costs associated with the high number of small treatment works;
- the additional costs associated with sludge treatment; and
- the costs of removing phosphorus and nitrates.

Second draft business plan

Scottish Water further revised and developed its claim for special factors in its second draft business plan. There were no changes to the operating expenditure special factors that it claimed. Scottish Water did, however, propose two new special factors that affected its level of capital maintenance expenditure. These special factors related to water resources and treatment, and service reservoirs.

The Commissioner set out Scottish Water's assessment (in 2003-04 prices) of the impact of special factors on its benchmarked annual operating expenditure. These are shown in Table 10.17. He noted that Scottish Water's assessment had changed only marginally between the first and second draft business plans.

Table 10.17: The annual financial impact of special factors (2003-04 prices)²⁰

Special factor	October 2004 submission	April 2005 submission
OPERATING EXPENDITURE		
Inherited asset base		
Leakage	£7.8m	£9.8m
Central regulatory laboratory	£0.7m	£0.7m
Geography and environment		
Travel costs	£16.8m	£11.4m
Service reservoirs and water towers	£1.9m	£2.1m
Electricity	£4.6m	£4.7m
Supply of materials to rural locations	£0.5m	£0.5m
Bad debt	£7.8m	£7.3m
Legal		
Sewer laterals	£10.0m	£11.7m
Waterworks sludge disposal	£2.3m	£2.3m
Political queries	£0.3m	£0.3m
Cryptosporidium	£1.7m	£2.0m
Operating expenditure total	£54.4m	£52.7m
CAPITAL MAINTENANCE EXPENDITURE		
Water resources and treatment	-	£17.4m
Service reservoirs	-	£1.0m
Capital maintenance total	-	£18.4m
TOTAL	£54.4m	£71.1m

Scottish Water claimed that there were 11 special factors which increased its operating costs and which were not taken into account by the econometric models. It also claimed that there were two special factors that increased its capital maintenance costs. The Commissioner reviewed each of these special factors in detail.

The Commissioner's response to special factor claims

The Commissioner found that some of the special factors that Scottish Water was claiming were either not material or were not outside managerial control. However, he did accept some of the special factors that Scottish Water had identified and made appropriate adjustments to his benchmarking as a result.

The Commissioner found no evidence to support the claim for an adjustment to benchmarked capital maintenance costs. In the case of operating expenditure,

the Commissioner adjusted benchmarked costs by £17.4 million a year in 2003-04 prices. The Commissioner's response to Scottish Water's claimed special factors is shown in Table 10.18.

Table 10.18: Summary of the Commissioner's response to Scottish Water's claim for special factors (2003-04 prices)

Special factor	Response	Allowance made
OPERATING EXPENDITURE		
Inherited asset base		
Leakage	No allowance	
Central regulatory laboratory	Re-categorisation of central regulatory laboratory costs	£0.7m
Geography and environment		
Travel costs (including supply of materials to rural locations)	Partial allowance	£6.5m
Service reservoirs and water towers	No allowance	
Electricity	Partial allowance	£2.0m
Bad debt	Partial allowance	£2.6m
Legal		
Sewer laterals	Partial allowance	£3.9m
Waterworks sludge disposal	Partial allowance	£0.9m
Political queries	No allowance	
Cryptosporidium	No allowance	
Other		
Public septic tanks	Partial allowance	£0.8m
Operating expenditure total allowance		£17.4m
CAPITAL MAINTENANCE EXPENDITURE		
Water resources and treatment	No allowance	
Service reservoirs	No allowance	
Capital maintenance total allowance		£0.0m
TOTAL ALLOWANCE		£17.4m

Adjustments for differences in the scope of activities

The Commissioner noted that over the past five years he had collected much improved information about Scottish Water's activities and about the quality of service it provides. In the draft determination, the Commissioner took account of his improved understanding of both the scope of activities and the level of service provided in assessing the scope for improvement in Scottish Water's efficiency.

²⁰ Totals may not add exactly due to rounding.

The Commissioner noted that the companies in England and Wales provide a broadly equivalent level of service to their customers. The scope of activity each company provides is also comparable. The Commissioner explained that because the activities of the companies south of the border were so similar, Ofwat did not have to adjust the result of its models to reflect any differences in the scope of their activities.

The Commissioner explained that the scope of activities and the levels of service provided to customers in Scotland were materially different from those that are provided in England and Wales. He commented that it was important to take these differences into account in calculating the scope for efficiency.

The Commissioner noted that the scope of Scottish Water's activities is in large part a function of the history of the water and sewerage industry in Scotland.

Activities where the scope of activity in Scotland is greater

- Scottish Water is responsible for lateral sewers (these are the sewer pipes that connect properties to the main sewers). In England and Wales most lateral sewers are the responsibility of customers.
- Scottish Water is responsible for public septic tanks. These are common in Scotland but rare in England and Wales.

Activities where the scope of activities in Scotland is smaller

- Around one-quarter of all households in England and Wales are metered, compared with only around 0.03% in Scotland. As a result, the companies south of the border face the additional costs of support activities, such as meter reading.
- Sophisticated water treatment processes to remove agricultural nitrate and pesticide pollution are much more commonly required in England and Wales than in Scotland.

- Companies in England and Wales have to maintain leakage at specified, economic levels. There are currently no leakage targets in Scotland.
- Companies in England and Wales have a legal duty to promote the efficient use of water by customers, whereas there is no such duty in Scotland.
- Reporters are used in Scotland and in England and Wales to scrutinise the regulatory returns. In Scotland, the Scottish Executive pays for the Reporter. In England and Wales, the companies meet these costs.

There are other differences that affect the scope of activities, such as major differences in population density and topography. However, the Commissioner concluded that his benchmarking analysis was likely to have taken account of most, if not all, of these differences.

The Commissioner used Yorkshire Water as the comparator company for his assessment of the difference in costs that results from differences in the scope of activities. The Commissioner reduced Yorkshire Water's operating costs to reflect its implied level of costs if it engaged in the same scope of activities as Scottish Water. This widened the efficiency gap, and suggested that there was greater scope for efficiency.

The Commissioner's analysis of differences in the scope of activities enabled him to draw more accurate conclusions about Scottish Water's relative performance. The adjustments that the Commissioner made to reflect differences in scope are summarised in Tables 10.19 and 10.20.

Table 10.19: Summary of the Commissioner's adjustments to the allowed for level of operating expenditure for differences in the scope of activities for the water service²¹

Water activity	Effect on Scottish Water's allowed for operating costs	Value of adjustment to Yorkshire Water's operating costs
Household metering	Decrease	£1.9m
Non-household metering	Decrease	£0.3m
Leakage	Decrease	£6.8m
Nitrate removal	Decrease	£1.6m
Legal duty to promote efficient water use	None	Immaterial
Reporter costs	Decrease	£0.15m
Total	Decrease	£10.8m

Table 10.20: Summary of the Commissioner's adjustments to the allowed for level of operating expenditure for differences in the scope of activities for the waste water service²²

Waste water activity	Effect on Scottish Water's allowed for operating costs	Value of adjustment to Yorkshire Water's operating costs
Household metering	Decrease	£1.9m
Non-household metering	Decrease	£0.3m
Reporter costs	Decrease	£0.15m
Total	Decrease	£2.3m

The Commissioner's adjustments represented approximately 12% of Yorkshire Water's modelled water operating cost and 3% of its waste water operating cost. The impact of this adjustment on the Commissioner's assessment of the efficiency gap is shown in Table 10.21. In the base year, 2003-04, these adjustments resulted in an efficiency gap of 32% for the water service and 24% for the waste water service.

Table 10.21: Adjusted modelled answers

	Water ²³	Waste water ²⁴
Initial gap	27%	28%
Gap after special factors	25%	23%
Gap after scope	32%	24%

²¹ Totals may not add exactly due to rounding.

²² Totals may not add exactly due to rounding.

²³ The gap for the water service is with respect to Wessex Water.

²⁴ The gap for the waste water service is with respect to Yorkshire Water.

The level of service provided by Scottish Water

The Commissioner made it clear that he considered it essential that Scottish Water should not seek to live within its charge cap by reducing the level of service it provided to customers. He therefore set milestones for improvements in customer service.

The Commissioner explained that benchmarking should be used to monitor the level of customer service provided by Scottish Water. He suggested that the overall performance assessment (OPA) framework developed by Ofwat, and information from the companies south of the border, should be used to monitor Scottish Water's relative performance.

The Commissioner explained that he had intended to make adjustments to Scottish Water's operating costs to reflect the difference in the level of service provided. However, Scottish Water had not provided the necessary information to enable him to do so (which he had asked for in the business plan guidance). As a result, the Commissioner was not able to adjust his calculation of the scope for efficiency to reflect the difference in levels of service.

As a result, the Commissioner decided that it was necessary for him to set milestones for improvement in the OPA. He expressed the view that an objective assessment of the efficiency improvement required had to take account of the level of service provided to customers.

The OPA depends on each company's performance in each of 15 individual performance measures. The Commissioner explained that he had included as many of the measures that are used by Ofwat as possible in his assessment of the OPA score for Scottish Water. The measures that the Commissioner included are shown in Table 10.22.

Table 10.22: Components of the OPA assessment

OPA component	Included or not	Basis and comparability
Inadequate pressure	Included	Actual performance, equivalent measure
Supply interruptions	Included	Actual performance, equivalent measure
Hosepipe restrictions	Included	Assumed performance
Drinking water quality	Included	Actual performance, some difference in definition of measure
Sewer flooding (overloaded sewers)	Included	Actual performance, equivalent measure
Sewer flooding (other causes)	Included	Actual performance, equivalent measure
Sewer flooding (at risk)	Included	Actual performance, equivalent measure
Company contact (3 out of 4 measures)	Included	Actual performance, equivalent measure
Assessed customer service	Not included	
Sewage sludge disposal	Included	Actual performance, equivalent measure
Sewage treatment works compliance	Included	Actual performance, equivalent measure
Category 1 & 2 pollution incidents (sewerage)	Not included	
Category 3 pollution incidents (sewerage)	Not included	
Category 1 & 2 pollution incidents (water)	Not included	
Leakage	Included	Assumed performance

The score that the Commissioner calculated for Scottish Water’s OPA in 2003-04 was 159. He compared this score with the equivalent scores for the water and sewerage

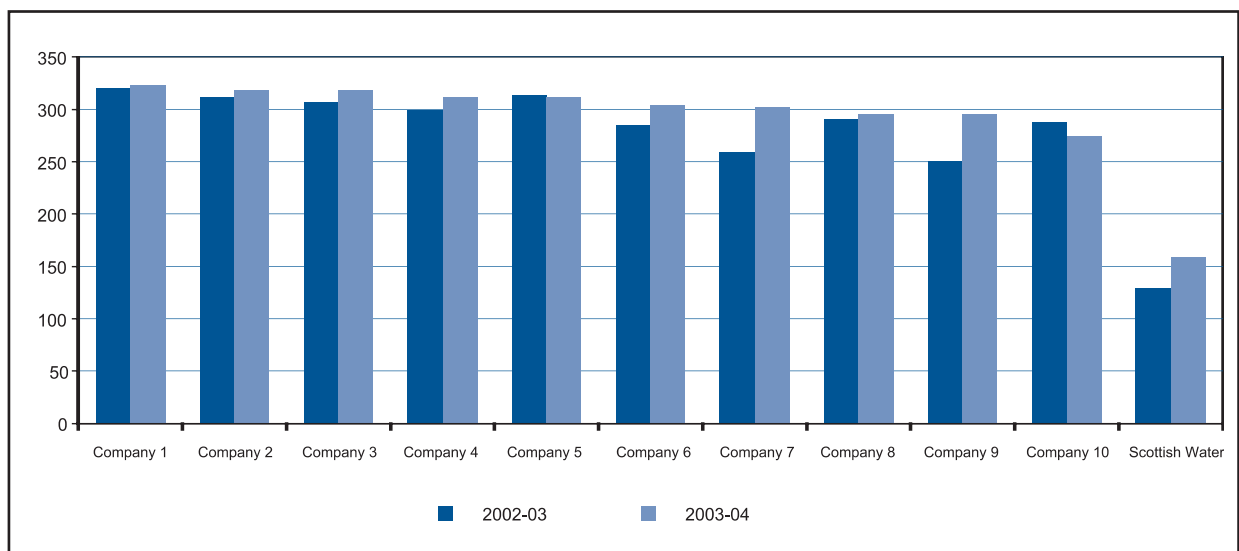
companies in England and Wales²⁵. His analysis for 2002-03 and 2003-04 is shown in Figure 10.2

The Commissioner noted that Scottish Water’s overall performance was relatively poor. It scored 58% of the score of the worst performing company in England and Wales and 49% of the best performing company’s score.

He concluded that Scottish Water had considerable room for improvement in the level of service it provided to its customers. The Commissioner set charges in the draft determination such that Scottish Water’s customers should expect to see improving service during the regulatory control period. His assumption was that he had allowed for sufficient operating costs such that Scottish Water’s performance should be broadly equivalent to that of the companies south of the border by the end of the 2006-10 regulatory control period.

The Commissioner set milestones so that it would be possible to monitor improvements in the level of service provided by Scottish Water each year. He noted that these milestones would be important in gauging whether Scottish Water was making good progress in closing the level of service gap. They would also help to ensure that efficiency targets were not being met at the expense of customer service.

Figure 10.2: OPA scores for 2002-03 and 2003-04



²⁵ Adjusted to reflect the parameters that the Commissioner was able to measure on an equivalent basis in Scotland.

Table 10.23 shows the milestones that the Commissioner expected Scottish Water to achieve.

Table 10.23: Milestones for the OPA set by the Commissioner

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
OPA	159	159	159	195	232	268	305

The Commissioner noted that Scottish Water’s response²⁶ to his second open letter²⁷ to Ministers suggested a misunderstanding of the way that the OPA is calculated. Scottish Water stated: “OPA scores will vary from year to year based on the relative performance with the water companies in England and Wales”. The Commissioner made it clear that Scottish Water’s OPA score would vary only in response to its own customer service performance.

The Commissioner also rejected Scottish Water’s argument that it should not be expected to improve its performance as Ministers had merely required serviceability to be maintained. The Commissioner explained that this argument overlooked the very significant investment required by Ministers to improve levels of service to customers, remove development constraints and improve public health and environmental performance. He noted that this investment should result in considerable improvements in Scottish Water’s OPA score. The Commissioner also emphasised that judicious use of operating costs by Scottish Water would be likely to improve its OPA performance quite significantly.

Improvement in Scottish Water’s performance required by the Commissioner

The Commissioner explained that he made a distinction between the efficiency gap that exists today and the gap that could exist in the future. He noted that in its 2004 price review, Ofwat had set prices that required all of the companies south of the border to improve their absolute level of efficiency. Ofwat had also identified that there was scope for well-managed companies to outperform their regulatory contracts.

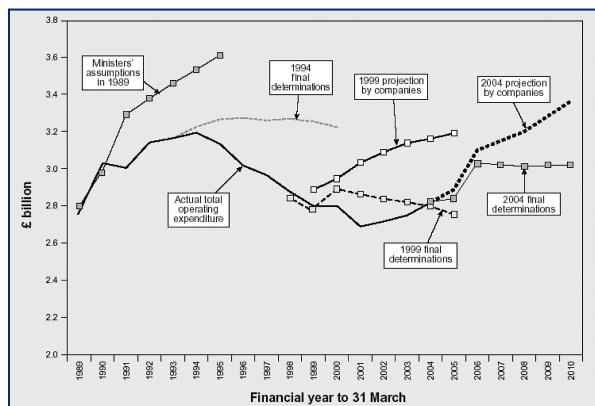
Ofwat set prices that took account of:

- an overall improvement in the efficiency of the industry; and
- a ‘catch-up’ factor, by which all companies (except of course the leading company) have to narrow the gap to the leading company.

Ofwat set prices that reflected the scope for the industry to improve its efficiency at approximately 0.6% a year for the water service and 1% a year for the sewerage service. It also required companies to narrow 60% of the gap to the leading company.

The Commissioner explained that the companies south of the border had been consistently successful in outperforming their regulatory contracts. His illustration of this performance is shown in Figure 10.3.

Figure 10.3: Comparison of total operating costs for the water and sewerage industry in England and Wales (2003-04 prices)²⁸



The Commissioner considered the following four approaches to assessing the scope for Scottish Water to improve:

- retain the approach that he used in the *Strategic Review of Charges 2002-06*;
- adopt Ofwat’s approach using a 2003-04 baseline;

²⁶ Dated 2/6/2005, available on our website.

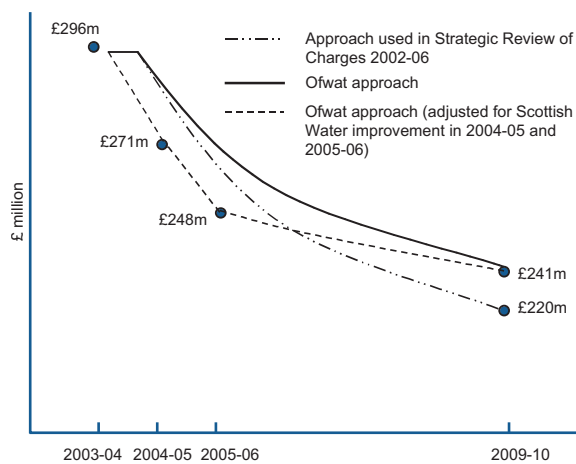
²⁷ Dated 10/5/2005, available on our website.

²⁸ From Ofwat’s ‘Water and sewerage service unit costs and relative efficiency 2003-04 report’, p10.

- adopt Ofwat's approach using a 2003-04 baseline, but take account of continuing improvements by Scottish Water in 2004-05 and 2005-06;
- determine the required pace of improvement that would bring Scottish Water's performance in line with the companies over the period to 2014.

Figure 10.4 shows the impact of these options on Scottish Water's baseline operating costs.

Figure 10.4: Scope for improvement in operating costs (in 2003-04 prices)



The Commissioner decided to adopt the approach that is used by Ofwat, adjusted to take account of the rapid improvement by Scottish Water that was likely in the last two years of the current regulatory control period. The Commissioner accepted Scottish Water's view on its likely improvement over the remainder of this regulatory control period. This assumption affects the level of operating costs that the Commissioner allowed for in the earlier years of the regulatory control period. It does not, however, affect the overall closure of the operating cost efficiency gap that has to be achieved by 2009-10.

The Commissioner's allowed for level of operating expenditure

The level of operating cost that the Commissioner allowed for provided the same scope for Scottish Water to outperform as Ofwat would normally make available to the companies south of the border. The profile for Scottish Water's allowed for level of operating expenditure that the Commissioner set for the 2006-10 regulatory control period is outlined in Table 10.24.

Table 10.24: Summary of the Commissioner's allowed for total operating costs for 2006-10²⁹

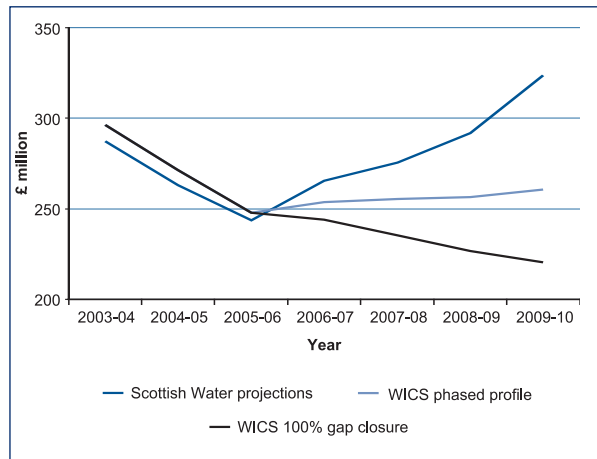
	2006-07	2007-08	2008-09	2009-10
	£296.5m	£296.5m	£296.5m	£296.5m
Less	£53.0m	£53.8m	£54.7m	£55.6m
Plus	£10.2m	£11.6m	£13.1m	£13.1m
Less	£0.9m	£1.4m	£2.1m	£2.6m
Plus	£1.1m	£3.0m	£4.7m	£12.2m
Less	£0.1m	£0.4m	£0.9m	£2.9m
Equals	£253.9m	£255.4m	£256.6m	£260.8m
Plus	£116.0m	£116.0m	£117.9m	£121.3m
Plus	£22.6m	£30.6m	£39.0m	£48.2m
Equals	£392.5m	£402.0m	£413.5m	£430.3m

In its second draft business plan, Scottish Water said that it would incur a significant increase in its operating costs. The Commissioner illustrated the difference between Scottish Water's forecast level of operating costs and the level of operating cost that he allowed, and this is shown in Figure 10.5. The Commissioner also showed the scope that he believed Scottish Water had to outperform the target. He calculated the scope for this outperformance with reference to the expected performance of the benchmark companies.

²⁹ Numbers may not add exactly due to rounding.

³⁰ The Commissioner applied actual inflation in 2004-05 and assumed annual inflation of 2% between 2005-06 and 2009-10.

Figure 10.5: Comparison between the allowed for operating cost, the scope to outperform and Scottish Water's projection³¹ (in 2003-04 prices)



Monitoring performance on operating expenditure

The Commissioner highlighted that the role of the regulator is to set challenging, achievable levels of performance for Scottish Water that would promote customers' interests. It is not for the regulator to direct how this performance should be achieved. This is a matter for the Board and management of Scottish Water.

It is the role of the regulator, however, to monitor progress against the minimum acceptable performance levels that it sets, and to verify that service levels to customers do not suffer as a result of management action to reduce costs.

The Commissioner noted that setting charge caps is only the start of the regulatory process. During the regulatory control period it would be important to monitor Scottish Water's progress in reducing its costs and improving its levels of service.

³¹ The Commissioner used Scottish Water's regulatory accounts for 2003-04 to calculate operating expenditure in that year. This figure is higher than that reported by Scottish Water in its business plan submission, which is why the figures for 2003-04 to 2005-06 are higher than Scottish Water's figures.

Chapter 11:

New information since the draft determination was published

Introduction

In the draft determination, the Commissioner set out the sources of information that he had used to assess the level of operating costs that he should allow for. In this chapter, we discuss various items of new information that we have taken into account in our assessment of the level of operating cost that should be allowed for.

This additional information includes:

- further analysis carried out by this Office;
- new information about Scottish Water's operating costs that it published after the draft determination was completed;
- new information that has been published (again, after the draft determination was completed) about the operating costs of the companies south of the border.

We used this new information to develop further the analysis that was carried out for the draft determination. This ensures that in assessing the appropriate allowed for level of operating costs, we have taken into account the latest and best information.

In the draft determination¹, the Commissioner noted that he expected us to receive new information for 2004-05 and to reassess Scottish Water's baseline and relative performance on operating costs in the light of this information. This chapter sets out these adjustments.

The Commissioner also set out his views on the additions that he should allow to baseline operating costs. We updated his assessment using the latest information on the level of business rates, SEPA charges, and pension and energy costs.

The Commissioner emphasised in his draft determination that the allowed for operating costs should enable Scottish Water to deliver improvements in levels of service to customers. This is because he did not

adjust the allowed for operating costs to take account of differences between the levels of service provided in Scotland and those provided by the companies in England and Wales. The Commissioner set clear milestones for Scottish Water's customer service performance. We updated his assessment of Scottish Water's levels of service using information from Scottish Water's 2005 Annual Return.

In September 2005, Scottish Water submitted representations on the operating costs that were allowed for in the draft determination. We outline these representations in the next chapter.

New information

The principal sources of new information since the draft determination are as follows.

- Scottish Water Annual Return 2005

This was submitted in June 2005. It provides updated information on Scottish Water's operating costs, its asset and customer bases, and its levels of service to customers. The Annual Return contains information for the 2004-05 financial year. The Reporter audits this information.

- Scottish Water regulatory accounts 2004-05

Scottish Water submitted its regulatory accounts for 2004-05 in June 2005. These accounts reflect the costs of regulated activities (ie they do not include the costs and revenues associated with non-core activities). The accounts provide a detailed breakdown of costs, including the split between wholesale and retail activities.

- Water and sewerage company regulated accounts 2004-05

The companies south of the border published their annual regulatory accounts in June 2005. These

¹ Draft determination, Volume 6, Executive Summary, page 5.

accounts provide a detailed breakdown of the costs of regulated activities.

- Ofwat's report on financial performance in 2004-05

Ofwat uses this report to outline its views on the companies' operating costs in 2004-05 and current trends in the level of their operating costs.

We used these sources of information to establish an updated baseline for operating costs, to revise our assessment of the operating cost efficiency gap, and to establish a new baseline for levels of service.

We also took account of the following information in updating the Commissioner's assessment of the appropriate additions to baseline operating costs:

- the Scottish Executive's announcement in September 2005 that it intended to align the uniform business rate in Scotland with that in England and Wales;
- the latest information on the expected level of employer contributions from the three local authority pension schemes that are used by Scottish Water;
- a report by Oxera about electricity costs (which was submitted to us by Scottish Water in June 2005);
- information from Ofgem about the validity of the forecasts for wholesale energy prices that were included in Scottish Water's submission;
- information from SEPA about the level of charges for abstraction licences and discharge consents that it expects Scottish Water to incur; and
- information about the increased regulatory costs that will result from implementation of the Water Services etc. (Scotland) Act 2005.

Analysis of the revised baseline

The draft determination² set out in detail the process that the Commissioner followed to establish a baseline for Scottish Water's operating costs. He used

information that related to the 2003-04 financial year. We have updated the operating cost baseline using information that relates to the 2004-05 financial year. We also adjusted the 2004-05 costs to a 2003-04 price base in order to assist comparisons with the draft determination.

Table 11.1 sets out our calculation of the updated baseline for operating costs.

Table 11.1: Calculation of updated baseline operating costs 2004-05

	2004-05 reported	2004-05 deflated to 2003-04 prices
Water service operating expenditure	£182.5m	£176.9m
Less:		
PPP costs	£0.0m	£0.0m
Exceptionals	£33.8m	£32.7m
Water service subtotal	£148.7m	£144.2m
Sewerage service operating expenditure	£264.8m	£256.7m
Less:		
PPP costs	£111.0m	£107.6m
Exceptionals	£28.0m	£27.2m
Sewerage service subtotal	£125.8m	£122.0m
Atypical costs	£0.0m	£0.0m
Capitalisation adjustments	£0.0m	£0.0m
Base operating expenditure	£274.5m	£266.2m

Table 11.2 compares the updated operating cost baseline with the baseline that was published in the draft determination.

Table 11.2: Comparison of revised baseline (2004-05) with the draft determination (2003-04)

	2004-05 reported	2004-05 deflated	2003-04 draft determination	Real terms change since draft determination (2003-04 prices)
Water	£148.7m	£144.2m	£166.7m	−£22.5m
Sewerage	£125.8m	£122.0m	£129.7m	−£7.8m
Total	£274.5m	£266.2m	£296.5m	−£30.3m

² Volume 6, Chapter 6.

We used this updated operating cost baseline in the final determination. The updated baseline is consistent both with the comments the Commissioner made in the draft determination about the extent of the likely improvement in operating costs during the 2004-05 financial year, and with Scottish Water's business plan forecasts. The Commissioner estimated that total operating costs in 2004-05 would be £271.4 million, in 2003-04 prices. Our analysis indicates that Scottish Water is on track to reduce its operating costs in 2005-06 in line with its forecast in its business plan. We used Scottish Water's forecasts to profile the level of operating costs allowed for in the draft determination.

Revised analysis of Scottish Water's efficiency gap

The draft determination³ set out in detail the process the Commissioner had followed to assess the operating cost efficiency of Scottish Water in 2003-04. We updated the Commissioner's assessment based on Scottish Water's performance in 2004-05. We have had to continue to compare Scottish Water's performance with that of the companies in 2003-04 because Ofwat has not yet published their annual returns. It is likely that the companies will have improved their operating cost performance marginally in 2004-05 and, as such, our analysis is likely to understate Scottish Water's operating cost efficiency gap in 2004-05 by a small amount.

Tables 11.3 to 11.8 summarise the results of our updated assessment of Scottish Water's efficiency gap. We outline the results of the four models that were described in the draft determination. The comparator companies are Wessex Water for the water service and Yorkshire Water for the sewerage service. We set out the impact on our results of adjustments for residuals, special factors and the scope of activity.

In this chapter, we made the same adjustments as the Commissioner made in his draft determination. Scottish Water made representations on some of these adjustments. We set out Scottish Water's representations in the next chapter and our final conclusions in Chapter 14. We continued to follow the

Commissioner's approach in focusing primarily on the results of the modified Ofwat model.

Table 11.3: Scottish Water's efficiency scores 2004-05

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Water	103.1	102.3	95.6	99.9
Sewerage	118.6	115.2	113.3	112.6

Table 11.4: Scottish Water efficiency gaps 2004-05

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Average – water service	3.0%	2.2%	-4.6%	-0.1%
Wessex – water service	21.8%	21.3%	28.5%	30.0%
Yorkshire – water service	18.0%	17.7%	7.5%	13.7%
Average – sewerage service	15.7%	13.2%	11.7%	11.2%
Wessex – sewerage service	29.0%	27.5%	27.5%	27.0%
Yorkshire – sewerage service	31.2%	29.6%	34.7%	34.4%
Average – combined	8.8%	7.2%	2.9%	5.1%
Wessex – combined	25.1%	24.1%	24.8%	25.9%
Yorkshire – combined	24.0%	23.0%	21.2%	24.0%

Table 11.5: Scottish Water's efficiency gaps after adjustments of the residuals⁴

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Average – water service	2.7%	2.0%	-3.7%	-0.1%
Wessex – water service	19.6%	19.2%	22.8%	24.1%
Yorkshire – water service	16.2%	15.9%	6.0%	11.0%
Average – sewerage service	13.1%	10.9%	9.7%	9.2%
Wessex – sewerage service	24.2%	22.8%	22.7%	22.2%
Yorkshire – sewerage service	26.0%	24.5%	28.7%	28.2%
Average – combined	7.4%	6.0%	2.3%	4.2%
Wessex – combined	21.7%	20.8%	20.1%	21.0%
Yorkshire – combined	20.6%	19.7%	17.2%	19.5%

We reviewed the Commissioner's assessment of allowances for special factors and revised the allowance

³ Volume 6, Chapters 8-12.

⁴ Ofwat applies an adjustment that reduces the 'residuals' (the difference between observed and predicted costs) by 10% and 20% for the water and sewerage services, respectively. We have applied the same adjustments to the Ofwat and modified Ofwat models. We have applied a 20% adjustment to the results of both water and sewerage in the alternative models.

for travel costs, electricity, bad debt, sewer laterals, waterworks sludge disposal and public septic tanks. We reviewed the Commissioner's analysis of the other special factors that were claimed by Scottish Water and concluded (before considering representations) that no other changes were appropriate.

We also reviewed the Commissioner's assessment of the differences in the scope of activities between Scottish Water and the comparator companies. We concluded (again, before considering representations) that there was no reason to change the Commissioner's assessment. Scottish Water made representations on the adjustments for both special factors and the scope of activity. These are outlined in the next chapter.

Table 11.6 summarises the allowances for special factors. It also sets out the change since the Commissioner's draft determination.

Table 11.6: Summary of special factor allowances for operating costs⁵ (2003-04 prices)

Special factor	Draft determination	Revised assessment	Change
Leakage	£0.0m	£0.0m	£0.0m
Central regulatory laboratory	£0.7m	£0.7m	£0.0m
Travel costs	£6.5m	£6.8m	£0.2m
Service reservoirs and towers	£0.0m	£0.0m	£0.0m
Electricity	£2.0m	£1.9m	£0.0m
Bad debt	£2.6m	£3.5m	£0.9m
Sewer laterals	£3.9m	£3.2m	-£0.7m
Waterworks sludge disposal	£0.9m	£0.5m	-£0.4m
Political queries	£0.0m	£0.0m	£0.0m
Cryptosporidium	£0.0m	£0.0m	£0.0m
Public septic tanks	£0.8m	£0.9m	£0.1m
Total allowance	£17.4m	£17.5m	£0.1m

Table 11.7 sets out our updated view on Scottish Water's operating cost efficiency gap after we made adjustments for special factors and the scope of activities.

Table 11.7: Scottish Water's updated operating cost efficiency gap after adjustments for special factors and scope of activities

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Water service – initial gap	21.8%	21.3%	28.5%	30.0%
Water service – gap after special factors and residual adjustments	15.5%	15.0%	19.2%	20.6%
Water service – gap after scope adjustment	23.8%	23.4%	23.8%	25.1%
Sewerage service – initial gap	31.2%	29.6%	34.7%	34.4%
Sewerage service – gap after special factors and residual adjustment	21.0%	19.3%	24.4%	24.0%
Sewerage service – gap after scope adjustment	22.7%	21.0%	24.5%	24.1%

Our analysis demonstrates that Scottish Water has improved significantly during 2004-05. Its performance improved only marginally for the sewerage service, but the improvement in its performance for the water service has been much greater. This is reflected in the results of all four models that we use. Table 11.8 summarises the change in Scottish Water's relative operating cost efficiency performance in 2004-05.

Table 11.8: Scottish Water's operating cost efficiency improvement in 2004-05

	Ofwat models	Modified Ofwat models	England and Wales based alternative model	Alternative model including Scottish Water
Water service – 2003-04	32.4%	32.0%	32.8%	34.1%
Water service – 2004-05	23.8%	23.4%	23.8%	25.1%
Sewerage service – 2003-04	25.1%	24.2%	29.5%	24.2%
Sewerage service – 2004-05	22.7%	21.0%	24.5%	24.1%

⁵ May not total due to rounding

Analysis of revised additions to the baseline

The draft determination⁶ set out in detail the process that the Commissioner had followed to determine the appropriate adjustments to the operating cost baseline. The Commissioner explained that such additions need to be outside the control of management. His assessment drew largely on Scottish Water's second draft business plan.

We reviewed his assessment and updated it to reflect the latest information that is available. Our updated assessment is presented using a 2003-04 price base. This will facilitate comparison with the draft determination.

Non-domestic rates

The basis on which Scottish Water's assets are valued for the purposes of non-domestic rates changed in April 2005. In the draft determination, the Commissioner anticipated the impact of this change by allowing for these expected new operating costs in Scottish Water's baseline. However, in September 2005, the Scottish Executive announced that the Scottish uniform business rate (UBR) would be lowered to the same level as that which is used in England and Wales. This reduces the increase in non-domestic rates that Scottish Water would have had to pay. We updated the Commissioner's assessment of the impact of the change in the calculation of Scottish Water's rates. Our assessment takes account of the transitional arrangements that phase increases over the period to 2008-09.

Table 11.9 compares our updated assessment with the Commissioner's draft determination.

Table 11.9: Updated assessment of the impact of change in non-domestic rates on Scottish Water

	2006-07	2007-08	2008-09	2009-10
Draft determination	£3.8m	£5.2m	£6.7m	£6.7m
Revised assessment	£2.2m	£3.1m	£4.7m	£4.7m

Pension costs

In the draft determination, the Commissioner accepted Scottish Water's claim for an increase in annual pension contributions of £5.1 million in 2003-04 prices.

Many large organisations commented on the impact of increased pension contributions on their businesses. On average, the effect of increased pension contributions should work its way through the economy in retail price inflation. To this extent, Scottish Water already enjoys significant protection from the full impact of increased pension contributions because its charge caps will be linked to the retail price index. Unfortunately, there is no straightforward way to assess the extent to which Scottish Water's average contributions differ from the economy-wide average.

We collected information about the three local government pension schemes to which Scottish Water contributes. We were advised that the increase would be phased in over four years. As a result, we changed the pension contributions that the Commissioner had allowed for.

Table 11.10 compares our updated assessment with the Commissioner's draft determination.

Table 11.10: Updated assessment of the impact of increased pension costs

	2006-07	2007-08	2008-09	2009-10
Draft determination	£5.1m	£5.1m	£5.1m	£5.1m
Revised assessment	£0.8m	£2.3m	£3.7m	£5.1m

Energy costs

In its first and second draft business plans, Scottish Water claimed that it was likely to face increased energy costs of around £2.4 million a year in 2003-04 prices. The Commissioner considered this claim carefully and allowed Scottish Water an additional £1.0 million a year for energy costs. The Commissioner's assessment took account of Scottish Water's actual reported increase in energy costs from 2003-04 to 2004-05 and its claim for increased costs in 2005-06.

⁶ Volume 6, Chapter 6.

Scottish Water submitted new evidence in May 2005, which the Commissioner was unable to include in his analysis for the draft determination. This new evidence had the effect of increasing Scottish Water's claim for additional energy costs. We sought advice from Ofgem on the validity of the forecasts for wholesale energy prices that were included in Scottish Water's submission. We also reviewed the evidence presented in the submission very carefully.

Scottish Water made further representations on energy costs in September 2005. These are discussed in Chapters 12 and 14.

Table 11.11 compares our updated assessment of the impact of increased energy costs with the Commissioner's draft determination.

Table 11.11: Impact of increased energy costs on Scottish Water

	2006-07	2007-08	2008-09	2009-10
Draft determination	£1.0m	£1.0m	£1.0m	£1.0m
Revised assessment	£0.4m	£0.0m	£0.0m	£0.0m

Bad debt

In its second draft business plan, Scottish Water claimed that its proposed price increase of 88% in real terms would lead to a marked rise in customer bad debt. Scottish Water estimated that the cost of bad debt would reach £30.2 million (in 2003-04 prices) by 2009-10. The Commissioner did not accept this claim because his draft determination concluded that there was no need to increase charges in real terms. We received no new information that would lead us to accept any claim for increased bad debt.

Retail business operating costs

In the draft determination, the Commissioner separately considered Scottish Water's claims for additional operating costs resulting from the separation of the non-household retail business⁷. We discuss our response to Scottish Water's claims in Chapter 35.

Landfill tax

In its second draft business plan, Scottish Water claimed additional annual costs of up to £2.6 million relating to increased landfill taxes for the disposal of waterworks sludge. Scottish Water claimed that the reclassification by SEPA of waterworks sludge as an 'active' waste made it subject to landfill tax. Scottish Water projected the increases it expected in the rates of tax that would be levied. The Commissioner accepted these arguments. However, the Commissioner did not allow for this claim in his draft determination because Scottish Water had not demonstrated that it was pursuing options for the disposal of waterworks sludge by other means (for example, through the sewerage network).

Scottish Water's evidence also demonstrated that the reclassification of waterworks sludge impacted on costs in the 2004-05 financial year. As our revised baseline year is 2004-05, we decided not to make an allowance for this claim.

SEPA charges

In its second draft business plan, Scottish Water claimed that the charges it pays to SEPA would increase, due to the introduction of water abstraction and impoundment licences and increased charges for discharge consents. The Commissioner did not allow for this claim in his draft determination. He considered that the evidence provided by Scottish Water was inconclusive.

We asked SEPA for its forecast of the charges it expects Scottish Water to pay. We revised the Commissioner's assessment of the additional costs that Scottish Water is likely to face in the light of this information. This revised assessment allows for Scottish Water's claims for abstraction and discharge charges, but uses SEPA's upper limit for impoundment charges.

Table 11.12 sets out the revised allowances for SEPA charges.

⁷ See Volume 7 of the draft determination.

Table 11.12: Revised allowances for SEPA charges

	2006-07	2007-08	2008-09	2009-10
Draft determination	£0.0m	£0.0m	£0.0m	£0.0m
Revised assessment	£1.9m	£2.8m	£2.8m	£2.5m

Costs of regulation

In June 2005, Ministers announced that the Water Industry Commission would take over from the Water Industry Commissioner for Scotland on 1 July 2005. The costs of the new regulatory framework are likely to be higher than those of the previous system. We allowed for an annual increase of £0.7 million in line with the Commission's Corporate Plan and budget for the 2006-10 regulatory control period. We retained the allowance in the Commissioner's draft determination for annual Reporter costs of £0.3 million.

Table 11.13 summarises our updated assessment of additions to the operating cost baseline.

Table 11.13: Updated assessment of additions to the operating costs baseline

Factor	2006-07	2007-08	2008-09	2009-10
Non-domestic rates	£2.2m	£3.1m	£4.7m	£4.7m
Pension costs	£0.8m	£2.3m	£3.7m	£5.1m
Energy costs	£0.4m	£0.0m	£0.0m	£0.0m
Bad debt	£0.0m	£0.0m	£0.0m	£0.0m
Landfill tax	£0.0m	£0.0m	£0.0m	£0.0m
SEPA charges	£1.9m	£2.8m	£2.8m	£2.5m
Regulation	£0.7m	£0.7m	£0.7m	£0.7m
Reporter	£0.3m	£0.3m	£0.3m	£0.3m
Total	£6.5m	£9.2m	£12.2m	£13.4m

Table 11.14 compares the total updated assessment of additions to the operating cost baseline with that which was allowed for in the draft determination.

Table 11.14: Comparison of the total updated assessment of additions to the operating cost baseline with the assessment in the draft determination

	2006-07	2007-08	2008-09	2009-10
Draft determination	£10.2m	£11.6m	£13.1m	£13.1m
Revised assessment	£6.5m	£9.2m	£12.2m	£13.4m

Baseline operating costs for 2006-10

Table 11.15 summarises the baseline that we established and the revised adjustments that we allowed to reflect increased costs incurred by Scottish Water that are outside the control of management.

Table 11.15: Summary of the operating cost baseline for 2006-10

	2006-07	2007-08	2008-09	2009-10
Base operating costs (water)	£144.2m	£144.2m	£144.2m	£144.2m
Increases in operating costs (water)	£5.0m	£7.2m	£9.7m	£10.4m
Base operating costs (sewerage)	£122.0m	£122.0m	£122.0m	£122.0m
Increases in operating costs (sewerage)	£1.4m	£2.0m	£2.5m	£3.0m

New operating costs

We reviewed in detail the assumptions on new operating costs that the Commissioner made in his draft determination. There is no material new information that would affect our allowance for new operating costs. However, Scottish Water made representations on new operating costs and these are examined in Chapter 12. Our conclusions are presented in Chapter 14.

Analysis of the revised baseline for levels of service

We used information from Scottish Water's 2005 Annual Return to update the Commissioner's assessment of Scottish Water's level of service performance. The Commissioner adapted Ofwat's overall performance assessment index to compare Scottish Water's performance with that of the water and sewerage companies. The Commissioner described his approach in Chapter 13, Volume 6 of the draft determination.

In its 2005 Annual Return, Scottish Water revised the information about the time taken to restore supply after unplanned interruptions. This would have reduced its OPA score for 2003-04 from 159 (the score published in the draft determination) to 155. We reassessed the contribution of leakage to Scottish Water's OPA score. This increased its OPA score for 2003-04 from 155 to 162.

We also revised company OPA scores for 2003-04 where new information became available.

Scottish Water's OPA score improved in 2004-05, largely as a result of better performance on interruptions to supply and on drinking water quality. Table 11.16 compares the ranked OPA scores for 2003-04 and 2004-05.

Table 11.16: Scottish Water's OPA performance in 2003-04 and 2004-05

Rank in 2004-05	2003-04 (restated)	2004-05 ⁸
Company 1	318	324
Company 2	323	319
Company 3	316	316
Company 4	315	315
Company 5	316	312
Company 6	318	312
Company 7	302	301
Company 8	298	296
Company 9	304	296
Company 10	285	288
Scottish Water	162	177

Scottish Water's improved performance in 2004-05 is broadly in line with that which is required to reach the target OPA score for 2009-10 that was set in the draft determination.

Conclusions

This chapter has updated the Commissioner's analysis of operating costs based on the latest information that is available. In particular, we updated the baseline for operating costs and the assessment of Scottish Water's efficiency gap using the information contained in Scottish Water's 2004-05 Annual Return. In Chapters 12 and 13 we outline the representations we have received from Scottish Water and other stakeholders concerning the Commissioner's assumptions and his analysis of operating costs in his draft determination. Chapter 14 sets out the Commission's views on operating costs and levels of service.

⁸ In 2004-05 Ofwat changed some of its assumptions on the range of performance to apply when scoring companies. We have adopted the revised ranges for 2004-05. Ofwat's revision affects slightly the comparison of OPA scores between 2003-04 and 2004-05.

Chapter 12:

Scottish Water's representations

Introduction

In Volume 6 of the draft determination, the Water Industry Commissioner set out his views on an appropriate level of operating costs to allow for Scottish Water. Scottish Water submitted its formal representations on the draft determination to us on 23 September 2005.

Scottish Water's representations commented on a number of aspects of the operating costs allowed for in the draft determination, including both 'base' costs (those required to deliver the current level of service) and 'new' operating costs (those costs that reflect improvements in customer service, public health compliance and environmental performance). Scottish Water also commented on the costs of retail separation allowed for in the draft determination. In this chapter we summarise these representations and set out our views of the key points made by Scottish Water.

We considered the points made in Scottish Water's and other stakeholders' representations in reaching our final view on the appropriate level of operating costs that Scottish Water should incur in providing the required level of service to customers. Our conclusions are set out in Chapter 14.

Scottish Water's representations on the assessment of comparative efficiency

In its representations, Scottish Water expressed a number of overarching concerns about the approach adopted by the Commissioner in the draft determination. In summary, Scottish Water states that it does not believe that the econometric models capture all of the cost drivers that explain water companies' costs.

In particular, Scottish Water pointed out that:

- it did not believe that the draft determination fully addressed the specific characteristics of its operating environment;

- it did not believe that the Commissioner's alternative model addressed its concerns about the Commissioner's sole reliance on ordinary least squares (OLS) modelling; and
- it disagreed with the interpretation of the residual as equating to efficiency.

Scottish Water also pointed out that Ofwat expects the companies in England and Wales to close 60% of the assessed relative efficiency gap over a five-year regulatory period. It argued that the Commissioner expected Scottish Water to close 60% of the assessed relative efficiency gap over a four-year regulatory control period. Scottish Water believed that an expected 48% closure would be consistent with Ofwat's approach.

Scottish Water's representations on the special factors adjustments

Scottish Water submitted a separate document in response to the Commissioner's conclusions in his draft determination on its claims for special factors. This document examined each claim in turn, reviewed the original basis for the claim and the special factor allowance in the draft determination, and updated its claims. Scottish Water's submission was informed by a workshop that we held in mid-August. Scottish Water's representations are summarised in Table 12.1.

Table 12.1: The annual financial impact of special factors (2003-04 prices)

Special factor	Second draft business plan	Draft determination	Do representations dispute draft determination?	Revised claim
Leakage	£9.8m	£0.0m	Yes	£9.8m
Central regulatory laboratory	£0.7m	£0.7m	No	£0.7m
Travel	£11.4m	£6.5m	Yes	£11.4m
Service reservoirs and water towers	£2.1m	£0.0m	Yes	£2.1m
Electricity	£4.7m	£2.0m	Yes	£4.7m
Supply of materials to rural locations	£0.5m	Included with travel	No	£0.0m
Bad debt	£7.3m	£2.6m	Yes	£7.3m
Sewer laterals	£11.7m	£3.9m	Yes	£11.7m
Waterworks sludge disposal	£2.3m	£0.9m	Yes	£1.2m
Political queries	£0.3m	£0.0m	No	£0.0m
Cryptosporidium	£2.0m	£0.0m	Yes	£1.7m
Public septic tanks	Not claimed	£0.8m	Yes	£1.2m
Total	£52.7m	£17.4m		£51.8m

Scottish Water stated that it did not believe that the special factors adjustments made by the Commissioner in his draft determination took sufficient account of the different operating environment in Scotland. Scottish Water asked us to reconsider the Commissioner's approach to the special factors where he had made a significant reduction in its claim.

In its representations, Scottish Water observed that some of its claims were reduced in the draft determination through consideration of its performance beyond 2003-04. Scottish Water believed that this was methodologically incorrect and understated the value of its special factors in the benchmark year.

In its second draft business plan, Scottish Water submitted a claim for 11 special factors that it stated were outwith management control and resulted in higher operating costs in Scotland. The total annual financial impact of these factors was £52.7 million.

In its representations, Scottish Water did not dispute the Commissioner's decision on three of its special factors: central regulatory laboratory, supply of materials to rural locations and political queries. Scottish Water disputed the Commissioner's decision on the other eight special factors and submitted a revised claim. These special factors are leakage, travel costs, service reservoirs and water towers, electricity, bad debt, sewer laterals, waterworks sludge disposal and cryptosporidium. Although Scottish Water did not claim for public septic tanks as a special factor in its second draft business plan, it considered that the Commissioner's allowance for the cost of public septic tanks was too small and it therefore submitted a new claim. The total annual financial impact of Scottish Water's updated special factors claim is £51.8 million.

Scottish Water provided a response to the issues raised in the draft determination for the nine special factors that it had submitted in a revised claim in its representations on 10 August. Scottish Water also used new information relating to the 2004-05 base year.

The annual financial impact of three of Scottish Water's special factors claims changed as follows:

- Waterworks sludge disposal – Scottish Water has reduced its claim for waterworks sludge disposal from £2.3 million in its second draft business plan to £1.2 million. This change is due to new information on the classification of waterworks sludge when it is disposed of to landfill. Scottish Water also recognises that a separate claim of additions to base operating costs associated with the increase in landfill tax would decrease this claim to £1.1 million.
- Cryptosporidium – Scottish Water has reduced its claim for the extra costs of sampling for cryptosporidium from £2.0 million in its second draft business plan to £1.7 million. This update to its claim reflects its latest information on risk assessment.

- Public septic tanks – Scottish Water considered that the allowance made by the Commissioner in his draft determination was insufficient. It has submitted a new claim for £1.2 million. Scottish Water claims that this is its full cost of operating its public septic tanks in 2004-05.
- Non-household metering – Scottish Water observed that Ministers propose full metering of non-households by 2010. It believed that its non-household metering activities and costs will be similar to those of the companies in England and Wales by 2009-10. Scottish Water also believed that the adjustment was flawed because the cost deducted from the costs of the benchmark company was Scottish Water's projected cost for metering rather than the actual cost for metering incurred by the benchmark company.

Scottish Water's representations on the scope adjustments

Scottish Water disagreed in principle with the Commissioner's adjustment for differences in the scope of activities undertaken. It noted that Ofwat does not make scope adjustments in assessing the comparative efficiency of the water companies in England and Wales despite differences in the scope of activities undertaken by the companies. Scottish Water cited the examples of household metering and expenditure on leakage.

Scottish Water stated that the draft determination sets out the scope adjustments for Yorkshire Water but not for Wessex Water.

Scottish Water made a number of points relating to each of the scope adjustments made by the Commissioner in the draft determination. These are summarised in the main body of Scottish Water's representations and described in detail in Appendix X4.2 to its representations.

- Household metering – Scottish Water observed that it calculated its special factor claim for bad debt net of the cost savings it receives due to lower levels of household metering relative to the companies in England and Wales. It believed that, by making an adjustment for household metering, the Commissioner double-counted this adjustment. Scottish Water also believed that the adjustment was flawed because the cost deducted from the costs of the benchmark company was the average cost in England and Wales rather than the actual cost incurred by the benchmark company.
- Leakage – Scottish Water believed that the Commissioner's adjustment for leakage was inconsistent with the other assumptions in the draft determination. In particular, Scottish Water was concerned that the adjustment could mean that it has to meet operating costs associated with active leakage control, but that no such allowance has been made in the draft determination.
- Nitrate and pesticide removal – Scottish Water accepted that nitrate and pesticide removal is not a significant cost driver in Scotland. It believed, however, that the cost of nitrate and pesticide removal in England and Wales is equivalent to the high operating costs of solutions to water quality issues that it states are unique to Scotland. Scottish Water cited the example of nano-filtration.
- Reporter costs – Scottish Water observed that in England and Wales the cost of regulation is shared by 23 companies, whereas in Scotland it bears these costs alone. Scottish Water calculated that it incurs an additional net cost of £0.22 million for the cost of regulation with respect to the companies in England and Wales.

Scottish Water's representations are summarised in Table 12.2.

Table 12.2: Scottish Water’s assessment of the value of the adjustment to benchmark company costs for scope of activities (2003-04 prices)

	Water service		Waste water service	
	Draft determination	Scottish Water view	Draft determination	Scottish Water view
Household metering	–£1.9m	£0.0m	–£1.9m	£0.0m
Non-household metering	–£0.3m	£0.0m	–£0.3m	£0.0m
Leakage	–£6.8m	£0.0m	n/a	n/a
Nitrate removal	–£1.6m	£0.24m	n/a	n/a
Reporter costs	–£0.15m	£0.11m	–£0.15m	£0.11m
Total	–£10.8m	£0.35m	–£2.3m	£0.11m

Scottish Water’s representations on new operating costs

Quality and Standards II

In its representations, Scottish Water noted that its 2004-05 Annual Return submission did not include information on all of the assets being constructed as part of the Quality and Standards II programme. It concluded, therefore, that the baseline operating costs allowed for in the Commissioner’s draft determination did not include any allowance for these assets. It estimated that the inclusion of these Quality and Standards II assets completed after 2004-05 would add between £2.74 million and £2.91 million to its annual operating costs for the sewerage service.

Inflation assumption

Scottish Water believed that the inflation assumption used by the Commissioner in his draft determination did not appropriately compensate it for the cost increases it faces and, as such, represented a disguised efficiency target. In particular, Scottish Water believed that the Commissioner’s approach disadvantaged it relative to the companies in England and Wales because, at its 2004 periodic review, Ofwat allowed for operating costs to increase in line with the retail price index.

Scottish Water cited a survey of 21 independent forecasts, which indicated that the annual RPI will be approximately 0.5% greater than CPI. Scottish Water also noted that its own analysis demonstrated that its unit costs would increase faster than RPI during the 2006-10 regulatory control period. Scottish Water forecast an increase in its base operating costs of more than 3% each year. It attributed this increase to expected annual increases in labour costs in excess of 4%.

Quality and Standards III

Scottish Water submitted a claim for new operating costs in its second draft business plan of £58.8 million. It considered that the reductions to this claim in the draft determination had not been supported with evidence and were significantly less than the funding provided by Ofwat in England and Wales. It also noted that funding had been reduced based on expected completion dates, and stated that the full allowance would be required from 2010-11 onwards.

Scottish Water made a number of specific points:

- Drinking water quality enhancements – Scottish Water disagreed with this reduction in principle and considered that the adjustments made to its claim were either not justified or methodologically inconsistent. In particular, Scottish Water argued that many of the processes that are installed in Scotland go beyond typical benchmark standards and are as complex as processes that are funded in England and Wales. It noted that Ofwat did not make reductions for investment considered to be catch-up. Scottish Water believed that, by providing no new operating cost allowance, the Commissioner effectively set a 100% catch-up target relative to the benchmark company. It believed that a consistent catch-up of 60% should be applied; hence, it should be allowed 40% of its claim.
- Environmental enhancements (waste water service) – Scottish Water was concerned that the reduction of new operating expenditure would affect its proposed work on UIDs and proposed improvements to inland and coastal river quality.

- Leakage – Scottish Water did not submit a claim for new operating costs associated with leakage reduction in its second draft business plan. In its representations, however, it expressed concern that the scope adjustment to its base operating costs had removed the operating cost allowance for leakage and suspected that this was inconsistent with the leakage targets implied by the OPA target.
- Customer service improvements – Scottish Water observed that the draft determination stated that an allowance had been made for water and waste water customer service improvements. It believed that it was unclear what allowance had been made due to inconsistencies between the text and tables in the draft determination.

Scottish Water's representations on additions to base operating costs

Scottish Water submitted a claim for additions to base operating costs in its second draft business plan of £169.3 million. It considered that the reductions to this claim in the draft determination had not been supported with evidence.

Scottish Water's representations are summarised in Table 12.3.

Table 12.3: Scottish Water's representations on additions to base operating costs (2003-04 prices)

Additions to base operating costs	Second draft business plan, four-year total	Draft determination, four-year total	Do representations make a revised claim?	Revised claim, four-year total
Non-domestic rates	£24.5m	£22.4m	No	
Pensions	£20.4m	£20.4m	No	
Power	£9.6m	£4.0m	Yes	£46.0m
Bad debt	£65.0m	£0.0m	No	
Retail business	£23.2m	£0.0m	No	
Landfill tax	£8.2m	£0.0m	No	
SEPA	£18.4m	£0.0m	Yes	£21.2m
Reporter	£0.0m	£1.2m	No	
Total	£169.3m	£48.0m		

Scottish Water makes a number of specific points:

- Non-domestic rates – Scottish Water recognised that the draft determination granted the majority of its claim for an increase in non-domestic rates. It remained concerned, however, that the allowance had been subject to an efficiency target despite the revaluation of the water undertaking being outwith management control. Scottish Water also argued that it had already set itself an implied efficiency target by not making a claim for an increase in rates on waste water and other non-water properties. It claimed that it could not make further efficiencies.
- Pension costs – Scottish Water recognised that the draft determination allowed its request for an additional annual £5.1 million to fund higher pension contributions. It remained concerned, however, that the allowance had been subject to an efficiency target.
- Power costs – Scottish Water considered that the allowance in the draft determination was insufficient to cover the additional energy costs it would incur in the 2006-10 period. It did not consider a review of historic costs as an appropriate method of forecasting future energy costs. Scottish Water submitted in its representations a further forecast from Oxera reflecting the latest developments in the energy market. Scottish Water's revised claim totalled £46 million. In support of this claim, Scottish Water highlighted changes in the wholesale power price between December 2004 and August 2005, and cited a market forecast prepared for it by John Hall Associates.
- Bad debt due to increased turnover – Scottish Water considered that domestic bad debt would amount to at least 4.5% of domestic income during the regulatory control period. It believed that any real increases in revenue during the regulatory control period would need a corresponding increase in the bad debt provision.
- Landfill tax – Scottish Water considered the additional costs it would incur due to increases in landfill tax to be unavoidable. In particular, it stated that there were differences in SEPA policy and the policy of the Environment Agency with regard to the disposal of waterworks sludge to farmland. It also believed that comments by the Reporter supported its claim.

- SEPA charges – Scottish Water considered that the additional costs it would incur due to SEPA charges were unavoidable as they were a result of changes to the regulatory regime. It noted that the companies in England and Wales are, generally, funded for abstraction charges through the price cap set by Ofwat. Scottish Water has revised its claim to take account of charges paid for PPP works where this remains the contractual liability of Scottish Water. This increased the value of Scottish Water’s claim to £5.3 million annually.
- Payment for development of market mechanisms – Scottish Water commented that if the development of market mechanisms required higher levels of funding, the Commission would need to allow higher revenue to the licensed business.
- Enhanced customer service – Scottish Water commented that a licensed business needs to be able to retain and win back customers and therefore forecast this cost in its business plan. However, the draft determination did not make an allowance for this.

Scottish Water’s representations on the operating costs of retail separation

Cost allocation

Scottish Water argued that the approach in the draft determination to allocate retail and wholesale costs based on the 2003-04 M Tables was flawed and that it overstated the costs allocated to the licensed business. Scottish Water noted that in 2003-04 the bad debt charge was unusually high. Scottish Water stated that the licensed business operating costs should be around £18-£20 million a year.

Retail additional costs

Scottish Water commented that the draft determinations applied three separate efficiency reductions (a 63% reduction on a four-year average) to the new operating costs figures provided by Scottish Water in its retail business plan. Scottish Water’s response also argued that no efficiency target should be applied to these figures, as they were provisional assessments that could not be confirmed until the market became operational.

Scottish Water commented on most of the components of new operating costs that the Commissioner had assessed in his draft determinations. Scottish Water made the following observations:

- Additional customer management effort – Scottish Water commented that it would need an additional eight FTE¹ to replicate customer management functions² in its licensed business. The draft determination disallowed this additional expense. Scottish Water claimed that these costs should be allowed in full.
- Additional costs in retail contact management centre – Scottish Water argued that the draft determination applied an overall 76% efficiency factor to this component. It stated that Scottish Water would need eight additional employees as a result of the loss in efficiency that would result from the separation of activities in its retail contact management centre. Scottish Water also claimed that it would need an additional seven employees because business customers’ asset related contacts would be handled twice (initially by the licensed business as the first point of contact, before being passed to the core business for resolution). Scottish Water claimed that these expenses should be allowed in full.
- Regulation and licensing, additional management structures and relations with the core business – Scottish Water argued that the three additional employees assumed in the draft determination was inadequate³. Scottish Water stated that such a reduced allowance would limit monitoring and reporting activities.

¹ Full time equivalent staff.

² Key customer management and strategic liaison with local authorities, business and community relations, marketing, etc.

³ Scottish Water proposed seven additional employees.

- Contribution to the Commission's costs – Scottish Water noted the allowed costs.
- New costs from IT separation – Scottish Water stated that the draft determination did not specify the grounds for disallowing the costs. It claimed that these costs should be allowed for in full.

Wholesale additional costs

Scottish Water stated that the draft determination applied three layers of efficiency to wholesale additional costs.

*"In this way, new operating costs had three separate efficiencies applied to them, such that, rather than increasing, allowed costs reduce by £4.42 million (average) – a 255% reduction on our claim for new average annual costs of £1.73 million."*⁴

Scottish Water stated that the Commissioner's claims in the draft determination about the potential for substantial cost efficiencies were without precedent and that the efficiencies gained in the electricity and gas markets were gained through:

*"consolidation and increasing the volume in their retail arms. As there is no opportunity for Scottish Water to do this, the draft determination's rationale for post-business separation efficiencies is flawed."*⁵

Scottish Water also analysed individual components of the Commissioner's allowance of wholesale additional costs.

- Billing and credit management of retailers – Scottish Water argued that the draft determination did not make any allowance for billing and credit management of retailers for the years 2006-07 and 2007-08. Scottish Water stated:

*"The new licensed business will hold its licences from April 2006 and must trade with Scottish Water throughout 2006-07 and 2007-08."*⁶

- Regulation in respect of the licensed market – Scottish Water stated that the draft determination did not make

any allowance for the *"new regulatory activities that will be required to support licensed retailers trading with Scottish Water including the development of market rules and trading arrangements"*.⁷

- Additional frictional costs in the core contact centre – Scottish Water argued that the draft determination did not provide any explanation for disallowing this cost.

Effect on efficiency of competition and business separation

Scottish Water's representations referred to a study that concluded that retail unit costs in a competitive market are 25% higher than those in a non-competitive market.

Scottish Water stated that if the new operating costs claimed in its second draft business plan were included in full, these would still be lower than those implied by this study. Scottish Water also commented that the costs allowed for in the draft determination were 20% lower than implied by the study.

Scottish Water therefore claimed: *"the available evidence on relevant comparators' unit costs shows that the costs set out in the draft determinations are insufficient for a business entering and operating in a competitive retail market."*⁸

Scottish Water also commissioned NERA to assess the efficiency assumptions included by the Commissioner in his draft determination. Its response highlighted the following:

- *"The draft determination assumption is inconsistent with market evidence, i.e. we do not observe privatised water companies (or other utilities unless forced to do so by regulators) separating wholesale and retail businesses to create value for their shareholders"*.
- *"The evidence from the energy sector cited in the draft determinations concerns the benefits from competition rather than separation per se. Indeed, the evidence from the water sector from Stone and Webster stated that "the possible benefits of competition may be offset by increases resulting from lost scope economies"*.

⁴ Scottish Water, *Scottish Water's response to the draft determination* (September 2005) Page 110.

⁵ Ibid.

⁶ Ibid., Page 112.

⁷ Ibid., Page 113.

⁸ Ibid., Page 114.

- *“This research also concluded that there were potential cost savings from the integration of water sector activities, i.e. there were economies (not diseconomies) of scope”.*
- *“Furthermore, the form of the water business service operating cost econometric models, used by Ofwat and WIC, suggests that there are economies of scale in the provision of retail services. Therefore the separation of the retail business into non-eligible and eligible customers will lead to an increase in total costs.”⁹*
- Scottish Water’s claim for new operating costs should be assessed consistently with Ofwat’s approach at the 2004 price review. Of any new operating costs that are not accepted in full, at least 40% should be allowed for each year.
- The final determination should include allowances for revised estimates of energy costs, and the charges levied by SEPA, and, if necessary, increases in household bad debt because of increasing charges.
- No additional efficiency arising from separation of the licensed retail business should be imposed.

Scottish Water also referred to other sources (Professor Littlechild, Ofgem) which suggested that separation itself was not the cause of efficiencies. Scottish Water also referred to a Cambridge Economic Policy Associate study¹⁰ that stated that there is *“no indication that separated businesses demonstrate any greater partial factor productivity (PFP) than unseparated businesses”*.

Scottish Water pointed out that the draft determination assumed a 100% market share for Scottish Water’s licensed business. However, it argued that the final determination should allow for its costs once it started to lose market share.

Summary of minimum changes required by Scottish Water’s representations

Scottish Water tabulated in Sections 10.4 and 10.6 of its representations the minimum changes to the draft determination that it considered to be required. These were as follows:

- The Commission should reconsider its claim for special factors, maintaining consistency of base years.
- No scope adjustment should be made for leakage.

- The set up and new operating costs proposed in the second draft business plan, arising from separation of the licensed retail business, should be allowed for in full in the final determination.
- No efficiency target should be applied to the estimates of new operating costs arising from the introduction of competition.
- When the final determination uses 2004-05 for base line operating costs, it should amend the allocation of costs between retail and wholesale activities. This will show that costs allocated to non-household retail activities were £18.6 million, £6.2 million lower than in 2003-04.

⁹ Ibid. Page 116.

¹⁰ *Productivity improvements in distribution network operators*, Cambridge Policy Associates, November 2003.

Chapter 13:

Other stakeholders' representations

Introduction

In this chapter we summarise representations from other stakeholders on the approach that the Commissioner used in the draft determination to determine the maximum total operating costs allowed for in setting Scottish Water's charge caps.

Following a 12-week consultation period, we received 35 representations on the Commissioner's draft determination. Ten respondents commented on the allowed for level of operating costs. Most of those who commented referred to specific components of the approach that the Commissioner had used. This chapter details the representations we received on each stage of the process. It concludes with the key messages from these representations.

Baseline for operating costs

The Commissioner used 2003-04 as the base year for his draft determination. No respondents commented on the choice of base year.

The Commissioner also took account of potential changes in baseline operating costs during the regulatory control period. These changes were due to factors beyond the control of Scottish Water's management.

Five respondents commented on the allowed for level of additional baseline operating costs suggesting that the allowance was insufficient.

The GMB Trades' Union noted:

"...in non-controllable Opex [operating expenditure] the WIC has either significantly underestimated totally or ignored increased costs."

This view was shared by the Scottish Trades' Union Congress (STUC), UNISON Scotland, and the Transport and General Workers Union Scotland (T&G Scotland)¹. All three commented:

"...a significant element of new operational costs are outwith the control of Scottish Water. Energy prices are rising rapidly, SEPA charges and many others appear to have been given insufficient weight."

One of the additions to the baseline that Scottish Water claimed, but the Commissioner did not allow for, was new SEPA regulatory charges. The Commissioner noted that at the time of the draft determination, there was not sufficient clarity on these costs to include them.

SEPA noted that:

"...the additional resources required for the new Controlled Activities Regulations charging scheme have not been included within the determination. SEPA is able to give the Water Industry Commission reliable estimates of the costs to Scottish Water of the introduction of regulatory controls over abstractions, impoundments and engineering. We consider that this statutory requirement must be included in Scottish Water's base budget."

New operating costs

The Commissioner noted that, during the 2006-10 regulatory control period, Scottish Water would incur new operating expenditure to deliver improvements in environmental and drinking water compliance, levels of service to customers, and the supply/demand balance.

In the draft determination, the Commissioner concluded that he should allow for new operating expenditure in 2009-10 that was £25 million lower than Scottish Water had claimed in its second draft business plan.

Three stakeholders commented on this issue.

The STUC, UNISON Scotland, and T&G Scotland all commented:

"There appears to be large differences in the scope for new operational expenditure between the two documents. The WIC's view appears to be that Scottish Water is 'risk adverse' in this and other areas. Customers facing supply interruptions and sewer flooding may prefer a little less risk!"

¹ A large proportion of the representations from the STUC, UNISON Scotland and T&G Scotland were verbatim. Copies of all three representations are set out in Appendix 14 of this document and are available on our website, www.watercommission.co.uk

No other representations commented specifically on the allowed for level of new operating expenditure.

Establishing operating cost efficiency

In order to calculate the size of the operating cost efficiency gap between Scottish Water and the English and Welsh benchmark companies, the Commissioner used the Ofwat econometric models, a modified version of the Ofwat models using information from Scottish Water, and an alternative model.

The Commissioner used both Ofwat's econometric models and reworked Ofwat models including information from Scottish Water in 2003-04 to establish the size of the efficiency gap.

Two stakeholders commented on the Commissioner's approach.

Water UK noted its general concern:

"...about the complexity of this approach, its proportionality and effectiveness going forward, in a context of diminishing potential for efficiency gains..."

It also referred to a report that Ofwat had commissioned from the Independent Steering Group on the conduct of the 2004 price review in England and Wales². Water UK noted the report's recommendation that Ofwat's econometric approaches should be reviewed with a view to improving the transparency of the approach and increasing confidence in its outcomes.

In the draft determination, the Commissioner responded to a number of criticisms of the Ofwat efficiency models that Professor John Cubbin had made³. Professor Cubbin's criticisms related to the ability of the econometric models to take account of factors that he believed could potentially influence costs.

The Water Customer Consultation Panels (WCCP) noted:

"The Panels note the WIC statement that almost all of these potential issues were addressed as 'special factors'...The Panels note that WIC has made adjustments compared with E&W [England and Wales], but would seek assurance that the analysis adopted for special factors is fully robust and has not underestimated the cost of service provision across large parts of Scotland."

The other models that the Commissioner used in the draft determination adopted an alternative approach that was developed by his Office for the *Strategic Review of Charges 2002-06*. The Commissioner used these alternative models as a check on the results that he obtained from the Ofwat models.

No respondents commented on the use of these alternative models.

Adjustment to the modelled efficiency gap to take account of special factors

The Commissioner explained that it was not possible for the econometric models to capture every factor that might have an impact on companies' costs. He therefore considered it important to identify any special factors that would affect Scottish Water's operating costs that were not captured by the models.

As part of its second draft business plan submission, Scottish Water listed the special factors which it believed influenced its operating costs. The Commissioner assessed these claims against a set of published criteria.

The Commissioner found that some of the special factors that Scottish Water had claimed did not meet these criteria. Other special factor claims did. The Commissioner made what he considered to be the appropriate adjustments to his benchmarking.

The WCCP commented:

"...only about one third of SW's [Scottish Water's] claimed amount for the 11 opex 'special factors'

² Independent Steering Group, 'Report into the conduct of the 2004 Ofwat periodic review' (August, 2004). Available at: www.ofwat.gov.uk.

³ Professor John Cubbin, 'Assessing Ofwat's efficiency econometrics' (March, 2004).

(adjusting model for the Scottish situation compared with E&W [England and Wales] benchmarking) has been allowed. Although the WIC deals extensively with his justification for this in the Draft Determination, [we] are concerned that once again the economic regulators and the service delivery company can hold such diverse views...

The STUC, UNISON Scotland, and T&G Scotland all commented:

"We have previously highlighted the many differences between the English and Scottish water and wastewater systems. These are identified as 'special factors' in the DD [Draft Determination]. However, some have been given no allowance and others an allowance well below the assessment set out in the SWDBP [Scottish Water Draft Business Plan]."

No further representations were received on special factors.

Adjustments for differences in the scope of activities

In his draft determination, the Commissioner noted that in England and Wales the scope of activity that each company provides is comparable. As a result, Ofwat does not have to adjust the results of its modelling for any differences.

The Commissioner explained that the scope of activities provided to customers in Scotland were materially different from those that are provided in England and Wales. He therefore took these differences into account by adjusting the results of his econometric modelling.

No respondents commented on this process.

The level of service provided by Scottish Water

The Commissioner explained that he had intended to make adjustments to Scottish Water's operating costs to reflect differences in the levels of service provided by Scottish Water and the English and Welsh companies. His approach would have been similar to that which he

had used to adjust for differences in the scope of activities undertaken. However, the Commissioner noted that Scottish Water had not responded to his request for the necessary information.

In the draft determination, the Commissioner set charges such that Scottish Water's customers should expect to see improving levels of service during the regulatory control period. The Commissioner set milestones for the improvement in customer service using the overall performance assessment (OPA) approach that Ofwat has developed.

Eight stakeholders commented on this issue.

Two respondents supported the use of a mechanism to measure Scottish Water's progress in improving levels of service to customers during 2006-10.

The WCCP noted:

"Targetted and measurable improvements in customer service are highly laudable..."

SEPA also specifically welcomed the use of the OPA:

"...SEPA support the use of the serviceability indicators as contained in the Ministerial Statement and the proposed overall performance assessment (OPA) suggested in the draft determination."

Water UK, however, questioned the applicability of the OPA in this context:

"... the WIC uses the scores to establish absolute targets for Scottish Water to achieve, as opposed to providing the mechanism for incentivising the England and Wales companies."

In England and Wales, the companies' OPA scores can influence their price caps. Water UK was concerned to ensure that the OPA was:

"...consistent with the investment priorities that are being set by the Scottish Executive, and that the indicators upon which the OPA is based fall within Scottish Water's ability to control."

A similar view was shared by four other respondents. For example, the WCCP commented that it was:

“...concerned that the lack of clarity around how the WIC OPA targets align with Ministerial serviceability (capital maintenance) targets. In many cases OPA and serviceability indicators overlap (e.g water quality, interruptions, sewer flooding, pollutions incidents etc.)”

SEPA noted that there was a difference between the OPA and the serviceability indicators in the Ministerial Statement:

“..there is a mismatch between the two systems in terms of the parameters being measured.”

The GMB suggested that by proposing the use of the OPA:

“Ministers responsible to the Scottish Parliament appear to be acquiescing in the abdication of their responsibilities in the service of the WIC. The introduction of the Overall Performance Assessment is indicative of this approach.”

The STUC, UNISON Scotland, and T&G Scotland all commented:

“We are unclear why this system is being introduced in Scotland when it is for Scottish Ministers to determine the targets...The risk in this approach is that it creates managerial incentives for Scottish Water to focus on the regulators’ targets, not those of democratically elected Ministers.”

The OPA scores a company’s performance based on a series of individual measures. These measures are weighted in importance according to customer preferences. Some respondents questioned how applicable the weightings that are used in the Ofwat model are to the situation in Scotland.

The WCCP commented:

“...before introducing OPA in E&W [England and Wales], Ofwat in 1998 consulted widely on which categories of

service customers felt were most important, and the weightings applied to each...OPA as a tool has not been tested against customer opinion in Scotland.”

In the draft determination, the Commissioner noted that some of the individual measures that are used in the English and Welsh OPA were not currently applicable to Scotland, or were not currently measured.

SEPA commented:

“...our primary concern is that the Ofwat system contains reference to category 1,2 & 3 pollution incidents for sewerage which have not been carried through to the proposed OPA system due to a lack of data and differing definitions. SEPA consider that it is crucial that these indicators are included in any OPA.”

The DWQR noted:

“I am disappointed that there has been no discussion with the DWQR on the suitability of the measure that you are proposing for drinking water quality. It is important that the indices used to measure performance are aligned with the areas that need to be improved and that they drive the correct behaviour from Scottish Water.”

Five respondents (Water UK, STUC, UNISON Scotland, T&G Scotland and the WCCP) commented that there was insufficient consultation on the measures, the weightings used in the OPA, and the milestones set, before they were proposed in the draft determination.

Required improvement in Scottish Water’s performance

In his draft determination, the Commissioner established maximum overall allowed for operating costs by taking account of the size of the efficiency gap and the rate at which it could be closed over the regulatory control period. The Commissioner adopted Ofwat’s approach to assess the scope for Scottish Water to improve by using 2003-04 as a baseline, but taking into account continuing improvements by Scottish Water in 2004-05 and 2005-06.

The Commissioner also noted that there would be scope for a determined management to outperform this assessment.

One respondent, the GMB, commented specifically on the size of the required improvement:

“It is not possible for Scottish Water to achieve the efficiencies anticipated by the Water Industry Commission[er] within the identified opex.”

The WCCP was concerned that one source of efficiency savings had already been exhausted:

“The Panels cannot comment on the potential for SW [Scottish Water] to outperform the set targets. If however this involves further reductions in staffing, the Panels would caution that this should not jeopardise service to customers. Marginal productivity improvement for labour shedding declines as the labour force contracts.”

This concern was echoed by Perth and Kinross Council.

“Much is made of the reduced operating costs of Scottish Water, but no mention is made of the costs associated with this. In reality staffing levels in Scottish Water have been reduced to such an extent that they are now failing to provide even the minimum standards of service, which Local Authorities and Developers require. I consider that this is not an efficiency, but a false economy; i.e. short term cost cutting, which will ultimately result in increased costs for both Scottish Water and the Scottish public.”

The CBI commented about both the required efficiencies in operating costs and the investment programme:

“Business expects to see greater efficiency from Scottish Water and looks to the regulatory regime to implement and maintain a robust framework to achieve this. However, business will not be well served if the efficiency targets that are imposed on Scottish Water are unrealistic and result in a decline in the level of service that customers receive over time.”

The Commissioner’s allowed for level of operating expenditure

The Commissioner summarised the difference between Scottish Water’s forecast level of operating costs, and the level he had allowed for. He also showed the scope that he believed Scottish Water had to outperform the target.

The STUC, UNISON Scotland, and T&G Scotland all commented on the overall level of allowed for operating costs, noting that:

“There is a massive gap between the Scottish Water Draft Business Plan and the Draft Determination in respect of operational cost.”

The GMB also commented:

“Again the WIC has set out swingeing Opex reductions based on little objective evidence...”

Monitoring performance on operating expenditure

In the draft determination, the Commissioner noted that during the regulatory control period it would be important to monitor Scottish Water’s progress towards improving its levels of service and reducing its costs.

Other than the comments noted earlier on the OPA, no further representations were received on this issue.

Operating cost efficiency and the business separation of Scottish Water

In his draft determination, the Commissioner calculated a wholesale revenue cap for Scottish Water. He used an accounting method to calculate the costs that Scottish Water’s retail subsidiary would be likely to incur in serving non-households. The Commissioner examined the extra costs that may arise as a result of business separation; he also assessed the scope for efficiency that was likely to arise in both the wholesale and retail businesses as a result of business separation and the threat of competition.

The Commissioner calculated that Scottish Water's wholesale business should achieve additional efficiencies of £5.94 million by 2009-10 as a result of business separation and the threat of competition. He calculated that the retail subsidiary could accrue efficiencies of £2.35 million by 2009-10 for the same reasons.

Five respondents commented on these predicted operating efficiencies. The GMB noted that it was:

"...on record as opposing the wholesale/retail split of Scottish Water as an unnecessary wasteful and expensive duplication of costs. We therefore believe that the WIC's anticipated £8 million saving from separation to defy logic and experience in other utilities."

The STUC, UNISON Scotland and T&G Scotland all commented:

"...the DD [draft determination] cut of £8 million for the alleged benefits of business separation. We can find no evidence to support this figure and our experience in the energy industry together with independent reviews (House of Lords Select Committee) would indicate that this cut is based more on ideology than fact."

Water UK noted:

"...rather strong assumptions have been made that efficiencies will arise from business separation based on evidence that, given these uncertainties..., is by no means conclusive."

Summary

Many of the representations that we received on the allowed for level of operating expenditure were concerned that the efficiencies set out in the draft determination should not be achieved at the expense of levels of service to customers. Some were concerned about the disparity between the changes to the baseline, new operating costs and special factors claims made by Scottish Water in its second draft business plan, and what had been allowed for in the draft determination.

A key area of concern for many respondents was the proposed use of the OPA. In general, the need for an objective means to assess the level of service provided by Scottish Water was recognised. However, many respondents questioned the use of the OPA. Specific concerns related to the consistency of the OPA milestones with the ministerial serviceability targets, and the applicability of the measures and weightings in the OPA to the Scottish situation.

In the next chapter, we address these issues and present our conclusions on the maximum allowed for level of operating expenditure for 2006-10.

Chapter 14:

Our conclusions

Introduction

In this chapter, we set out our conclusions on the allowed for level of operating costs. The chapter explains our approach to setting the allowed for level of operating costs and our view on the improvement that Scottish Water should make in the level of service it provides to customers. We also set out our conclusions on the PPP costs that we should allow for.

Background

We have a duty to determine the lowest reasonable overall cost of delivering the ministerial objectives for the Scottish water industry. In deciding the level of operating costs to allow for, we have taken account of:

- additional operating costs, where improved operational practice is likely to be an effective method of meeting ministerial objectives;
- the current level of operating costs that are incurred by leading companies in England and Wales to provide the same level of service as Scottish Water;
- factors outside management control that impact on the level of operating costs that Scottish Water has to incur;
- the improvement in efficiency that we believe Scottish Water can reasonably achieve; and
- changes in the level of operating costs necessarily incurred by Scottish Water and the companies south of the border.

We have also taken account of representations of Scottish Water and other stakeholders.

Our review of Ofwat's price determinations would suggest that the regulator's view of the level of operating costs for which it is reasonable to allow is significantly lower than those that are claimed by the regulated companies. Our review also suggests that regulated companies typically outperform their regulatory contract. We outline this analysis in Figure 14.1.

We also reviewed the performance of Scottish Water and the three predecessor authorities over the past nine years. In particular, we have compared business plan projections of operating expenditure, actual performance by the industry in Scotland and the Commissioner's targets in the Strategic Review of Charges 2002-06. Scottish Water appears likely to meet these targets and to outperform the targets agreed in the Ten Principles¹. The results of this review are set out in Figure 14.2².

¹ See Volume 2 Chapter 6 of the methodology for the Strategic Review of Charges 2006-10.

² These comparisons exclude PPP costs.

Figure 14.1: Comparison of total operating costs for the water and sewerage industry in England and Wales (2003-04 prices)³

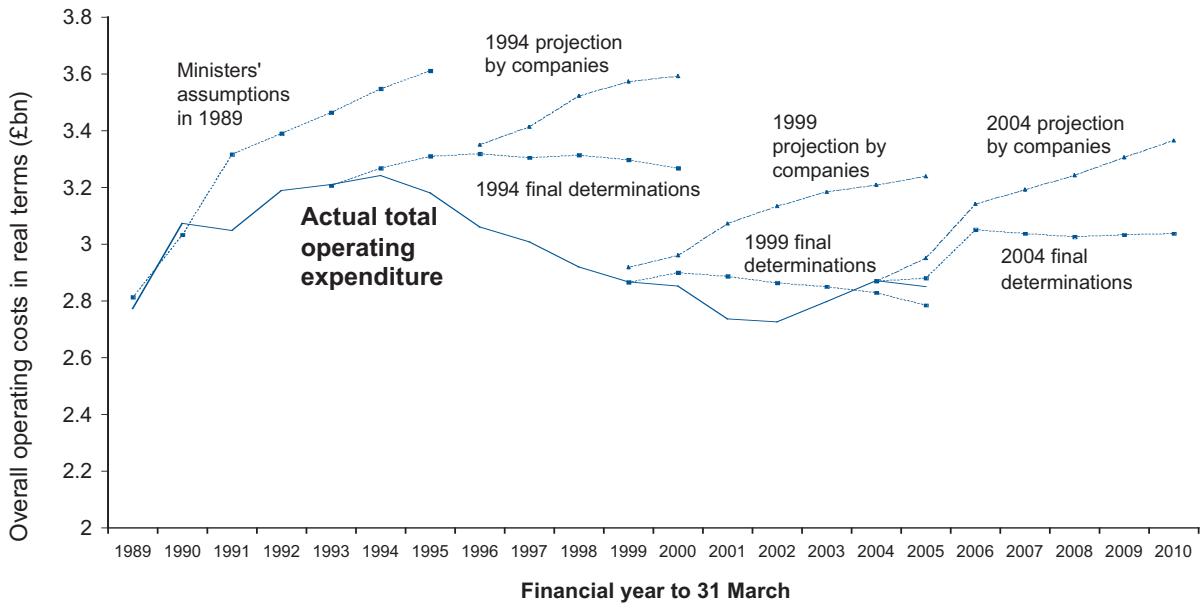
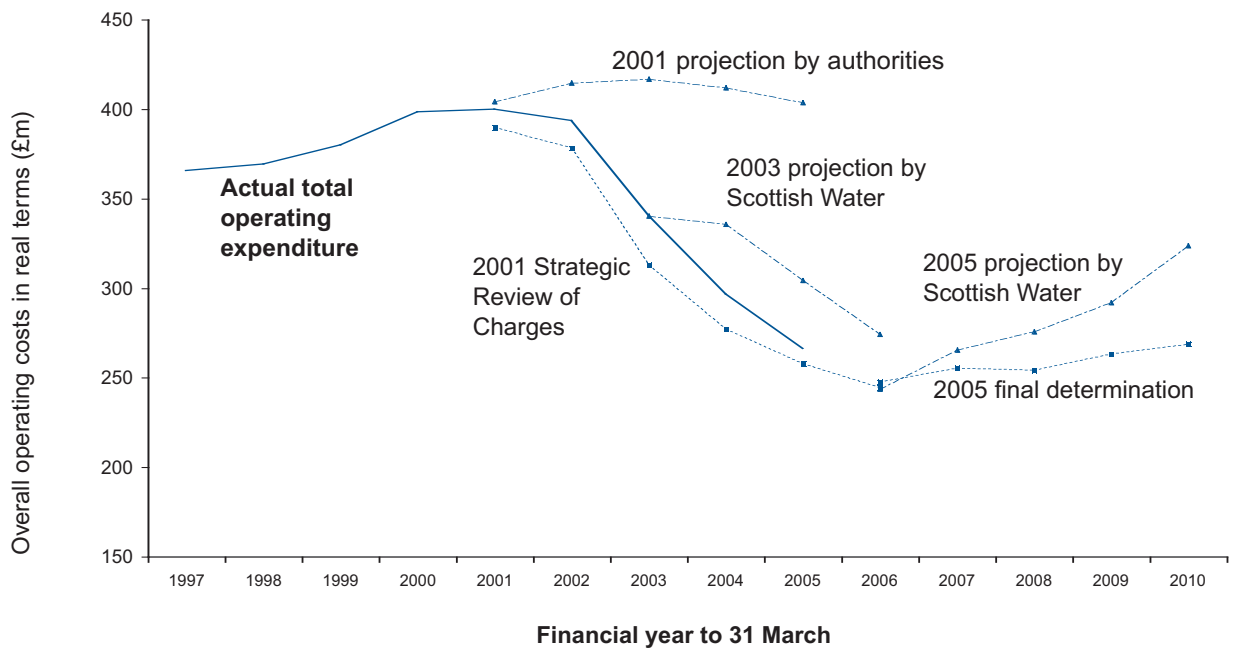


Figure 14.2: Comparison of total operating costs for the water and sewerage industry in Scotland (2003-04 prices)



³ Adapted from 'Water and sewerage service unit costs and relative efficiency 2003-04 report', Ofwat, page 10.

It is clear that, as for the privatised industry in England and Wales, management may overestimate the operating costs that they are likely to incur.

Our approach

In its 2004 final determination, Ofwat identified the scope for outperformance that it considered the companies could achieve. It referred to this as the 'carrot'. We have set operating costs such that Scottish Water has broadly the same scope to outperform its regulatory contract.

We carefully reviewed the Commissioner's approach to operating costs and levels of service in the draft determination. In particular, we examined carefully Scottish Water's claim for special factors.

Our conclusions

Introduction

We agree with the Commissioner's approach to setting the allowed for level of operating costs. However, we decided that it is appropriate to change a number of the assumptions that the Commissioner used. We accept the revisions to allowed for costs⁴ that result from new information on Scottish Water's performance in 2004-05. We also reviewed the scope for Scottish Water to improve its operating cost performance. In this regard, we broadly accepted the representations of Scottish Water.

We accepted Scottish Water's representations on the overall performance assessment (OPA) target. In our view the Commissioner was being a little too ambitious in his desire for improved performance. We concluded that we should set a lower target. We would, however, emphasise that we can see no reason why this revised target should not be achieved and, as such, we consider that the achievement of these revised targets should constitute the minimum level of performance that is acceptable to customers.

We welcome Scottish Water's progress in improving its operating cost efficiency. However, we consider that it is essential that Scottish Water builds on this success. In our view, the governance framework set out by the Scottish Executive in its representations on the draft determination provides a solid basis for further improvement. We discuss the Scottish Executive's representations in more detail in Chapter 31.

Critical issues

In reaching our conclusions, we have taken account of operating costs:

- associated with the ministerial objective to improve drinking water quality;
- likely to be incurred in improving the level of service provided to customers;
- likely to be incurred in moving towards an economic level of leakage; and
- likely to be incurred in implementing the wholesale/retail separation that is required by the Water Services etc. (Scotland) Act 2005.

We believe that we have allowed for a reasonable overall level of operating costs given these factors.

Our views on the representations of Scottish Water and other stakeholders

Chapter 12 summarised Scottish Water's detailed representations on the level of operating costs allowed for in the draft determination. Scottish Water summarised the minimum changes to the draft determination that it considered to be required. These were as follows:

- The Commission should reconsider its claim for special factors, maintaining consistency of base years.
- No scope adjustment should be made for leakage.
- Scottish Water's claim for new operating costs should be assessed in a way that is consistent with

⁴ Set out in Chapter 11.

Owat's approach at the 2004 price review. Of any new operating costs that are not accepted in full, at least 40% should be allowed for each year.

- The final determination should include allowances for revised estimates of energy costs, the charges levied by SEPA, and, if necessary, increases in household bad debt as a result of increasing charges.

Our response to these representations

We reviewed Scottish Water's claim for special factors and the Commissioner's conclusions in his draft determination. In our view, the draft determination made a reasonable allowance for special factors.

We also considered new information that has become available and concluded that there should be increases in allowances for travel costs, bad debt and public septic tanks, partially offset by reductions in allowances for sewer laterals and waterworks sludge disposal. Our analysis of this information suggests that a modest net increase in the allowance for special factors from £17.4 million to £17.5 million is appropriate.

We reviewed Scottish Water's representations on the scope adjustment for leakage that the Commissioner made in his draft determination. In our view, this adjustment was reasonable. However, we believe that we should make significant additional funding for leakage control available and we discuss this in more detail later in this chapter.

We considered Scottish Water's representation that we should allow 40% of all the new operating costs claimed by Scottish Water that we did not accept in full. Scottish Water considered that this would be consistent with the approach that Owat uses. However, we concluded that the approach used in the draft determination, although it disallowed some costs, resulted in a similar allowance to that which Owat may have made. In particular, we believe that Scottish Water should only be allowed additional funding to cover the efficient cost of any new water treatment processes that are required to meet the ministerial objectives.

Our consideration of Scottish Water's representations also led us to make the following changes to the assumptions on new operating costs that were used in the draft determination.

- We changed the profile of operating costs so that it better reflects the profile of allowed for capital investment. We increased the allowed for level of operating costs in the first three years of the regulatory control period.
- We increased the level of new operating costs allowed for in 2005-06.
- We made an allowance for improvements in operational practice to meet the ministerial objectives on drinking water quality. This is in addition to our allowed for capital expenditure. We discuss this allowance in more detail later in this chapter.

We also reviewed carefully Scottish Water's representations on additional costs for energy, bad debt and SEPA charges, and other elements including business rates and pension contributions. We considered detailed information from Ofgem, SEPA, the Scottish Executive and the local authority pension schemes that Scottish Water uses. In our view these are independent and authoritative sources of information. We allowed for additional operating costs only where these were justified given the information we received.

Our allowed for level of operating costs, before efficiencies

Additions to baseline costs

In most cases, this new information about additions to the operating cost baseline reduced the allowances that we considered necessary from those allowed for by the Commissioner in his draft determination. However, we have allowed for some additional costs based on information that we received from SEPA. Our additional allowance is less than the allowance for SEPA charges claimed by Scottish Water.

We set out our allowances for additional base operating costs, before efficiencies, in Table 14.1⁵.

⁵ All costs in this chapter are expressed in 2003-04 prices, unless stated otherwise.

Table 14.1: Summary of allowed for additions to base operating costs (before efficiencies)

Factor	2006-07	2007-08	2008-09	2009-10
Non-domestic rates	£2.2m	£3.1m	£4.7m	£4.7m
Pension costs	£0.8m	£2.3m	£3.7m	£5.1m
Energy costs	£0.4m	£0.0m	£0.0m	£0.0m
Bad debt	£0.0m	£0.0m	£0.0m	£0.0m
Landfill tax	£0.0m	£0.0m	£0.0m	£0.0m
SEPA charges	£1.9m	£2.8m	£2.8m	£2.5m
Regulation	£0.7m	£0.7m	£0.7m	£0.7m
Reporter	£0.3m	£0.3m	£0.3m	£0.3m
Total	£6.5m	£9.2m	£12.2m	£13.4m

We add these allowed for additions to baseline operating costs to establish the baseline for this regulatory control period.

We summarise our conclusions on baseline operating costs (before efficiencies), including the allowed for increases, in Table 14.2. We have set out our allowed for level of costs for the water and sewerage services separately.

Table 14.2: Summary of the operating cost baseline 2006-10 (before efficiencies)

	2006-07	2007-08	2008-09	2009-10
Base operating costs (water)	£144.2m	£144.2m	£144.2m	£144.2m
Increase in operating costs – water	£5.0m	£7.2m	£9.7m	£10.4m
Base operating costs – waste water	£122.0m	£122.0m	£122.0m	£122.0m
Increase in operating costs – waste water	£1.4m	£2.0m	£2.5m	£3.0m
Total base operating costs	£272.6m	£275.4m	£278.3m	£279.5m

New operating costs

We summarise our allowed for new operating costs, before efficiencies, in Table 14.3. This shows the allowed for costs after we have amended new operating costs to take account of our conclusions on the allowed for level of capital investment and Scottish Water's claim for new

operating costs incurred from 2005-06. It does not include our allowance for additional operating costs to improve levels of service. This is discussed later in this chapter.

Table 14.3: Allowed for new operating costs (before efficiencies)

	2006-07	2007-08	2008-09	2009-10
Water	£0.2m	£0.4m	£1.3m	£6.6m
Waste water	£3.1m	£3.6m	£4.9m	£7.9m
Total	£3.2m	£4.0m	£6.2m	£14.5m

Our conclusions on the expected level of service performance

We believe that we have allowed for sufficient funding for Scottish Water to make significant progress in improving its level of service to customers. In our experience improvements in operational practices, as distinct from capital investment, can lead to significant improvements in the level of service that is provided to customers.

We examined each element of the OPA and considered the reasonable scope for improvement. We took into account:

- the level of performance reported by the companies south of the border in 2003-04 and 2004-05;
- the rate of year-on-year improvement in each element reported by companies;
- Scottish Water's performance in 2003-04 and 2004-05;
- Scottish Water's detailed comments in response to the draft determination;
- the extent to which improvement in some elements may be constrained by available investment over the period to 2010;
- the extent to which improvements in each element could be achieved through changes to operational practice, given the experience of the companies in England and Wales.

We included as many of the measures that are used by Ofwat as possible in our assessment of Scottish Water's OPA score. Table 14.4 sets out the measures we included.

Table 14.4: Components of the OPA assessment

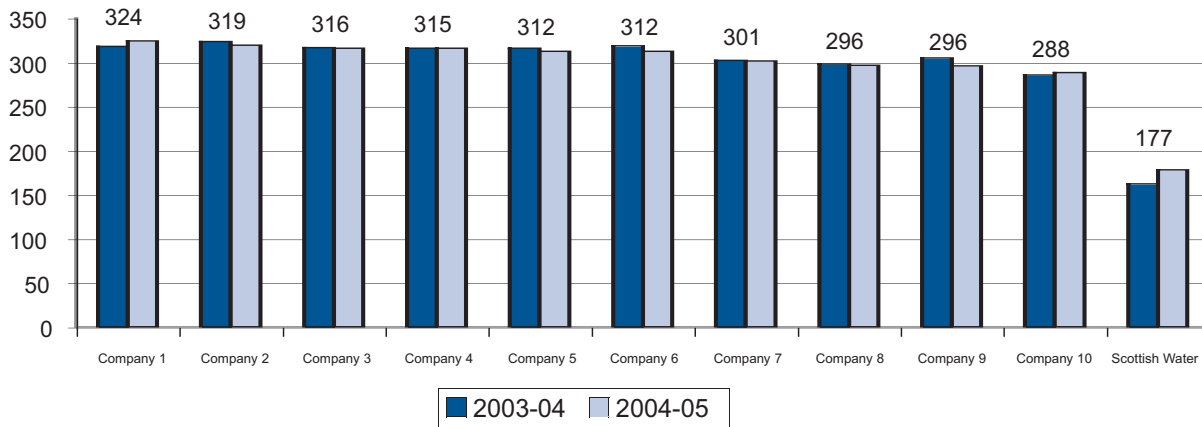
OPA component	Included or not	Basis and comparability of measure
Inadequate pressure	Included	Actual performance, equivalent measure
Unplanned supply interruptions	Included	Actual performance, equivalent measure
Hosepipe restrictions	Included	Assumed performance
Drinking water quality	Included	Actual performance, some difference in definition of measure
Sewer flooding (overloaded sewers)	Included	Actual performance, equivalent measure
Sewer flooding (other causes)	Included	Actual performance, equivalent measure
Sewer flooding (at risk)	Included	Actual performance, equivalent measure
Company contact (3 out of 4 measures)	Included	Actual performance, equivalent measure
Assessed customer service	Not included	
Sewage treatment works compliance	Included	Actual performance, equivalent measure
Sewage sludge disposal	Included	Actual performance, equivalent measure
Category 1 & 2 pollution incidents (sewerage)	Not included	
Category 3 pollution incidents (sewerage)	Not included	
Category 1 & 2 pollution incidents (water)	Not included	
Leakage	Included	Assumed performance

Although we had to make assumptions about performance in some areas, our view is that this does not have a material impact on our assessment of Scottish Water's overall performance.

Scottish Water's OPA score for 2004-05 is 177, based on the measures set out in Table 14.4.

Figure 14.3 also shows the scores for both 2003-04 and 2004-05.

Figure 14.3: OPA scores for 2003-04 and 2004-05



Scottish Water’s overall performance was relatively poor. Its score in 2004-05 was 61% of that of the worst performing company in England and Wales and 55% of the best performing company’s score.

In the next section we discuss the extent to which improvements in each element of the OPA could reasonably be made.

Inadequate pressure

In 2004-05, 0.48% of the properties connected to Scottish Water’s network experienced pressure that was below the reference level. Table 14.5 shows Scottish Water’s performance relative to that of the companies in England and Wales.

Table 14.5: Properties below reference levels for pressure in 2003-04 and 2004-05

	Percentage of properties below reference level of pressure in 2003-04	Percentage of properties below reference level of pressure in 2004-05
Scottish Water	0.52%	0.48%
England and Wales best	0.02%	0.01%
England and Wales median	0.03%	0.03%
England and Wales worst	0.07%	0.06%

Just 0.06% of properties served by the worst performing company in England and Wales suffered from low

pressure. The best performing company registered only 0.01% of properties as suffering from low pressure.

Experience in England and Wales demonstrates that improvements in this measure can be achieved from changes in operational practice. This is borne out by the rates of progress achieved by the companies year on year. Table 14.6 shows these improvements.

Table 14.6: Year-on-year progress in the percentage of properties receiving inadequate pressure in England and Wales

1995-96	1996-97	1997-98	1998-99
0.78%	0.43%	0.25%	0.17%

Based on this evidence, we believe that it is reasonable to expect Scottish Water to achieve 0.24% or better on this measure by 2009-10.

Unplanned supply interruptions

In 2004-05, more than 129,000 customers of Scottish Water experienced unplanned interruptions lasting up to 24 hours. A total of 915 customers suffered longer periods without water. Of all properties served by Scottish Water, 1.35% experienced unplanned supply interruptions that lasted longer than six hours. Table 14.7 shows Scottish Water’s performance in 2003-04 and 2004-05.

Table 14.7: Weighted performance score⁶ for properties suffering unplanned supply interruptions in 2003-04 and 2004-05

	Weighted performance score for properties receiving unplanned interruptions 2003-04	Weighted performance score for properties receiving unplanned interruptions 2004-05
Scottish Water	3.57	1.80
England and Wales best	0.03	0.06
England and Wales median	0.30	0.29
England and Wales worst	2.46	1.49 ⁷

Scottish Water's performance in 2004-05 lagged considerably behind the companies in England and Wales.

In its representations, Scottish Water indicated that its proposed investment to replace asbestos cement water mains in the north of Scotland would not lead to a significant improvement in unplanned supply interruptions. Scottish Water commented that this investment was targeted at only a small number of the worst affected properties in sparsely populated areas.

We accept that this proposed investment may have only a small impact on the number of unplanned interruptions to supply across the whole country. However, our experience suggests that effectively targeted capital maintenance combined with improvements in operational practice, should result in significant improvements in the service received by customers across Scotland. We consider that our conclusions are reasonable given our analysis of the annual rates of progress that have been achieved by the companies south of the border. It is also important to note that the companies were allowed less annual capital maintenance than we have allowed for in the case of Scottish Water. We set out our analysis in Table 14.8.

Table 14.8: Year-on-year progress in the weighted performance score for properties suffering unplanned supply interruptions in England and Wales

1995-96	1996-97	1997-98	1998-99
2.61	1.23	0.73	0.39

Based on this evidence, we believe it is reasonable to expect Scottish Water to achieve 0.50% or better on this measure by 2009-10.

Hosepipe restrictions

We consider that Scottish Water should make sufficient progress on leakage control, water treatment capacity and the relief of development constraints such that there are not likely to be any hosepipe bans.

Drinking water quality

Ofwat normally uses a measure of drinking water quality that is not available in Scotland. We have used the percentage of compliant samples (ie the percentage of water samples that met the required level of quality).

Tables 14.9 and 14.10 show the performance indices that Ofwat normally uses to determine the appropriate water quality score for the companies in England and Wales. The table also shows the percentage of compliant samples for every company (including Scottish Water). There are only relatively insignificant differences between the two measures. We have therefore compared Scottish Water's performance on compliant samples with the performance index for the companies in England and Wales. Table 14.9 compares performance for 2003-04 and Table 14.10 shows the same information for 2004-05.

For this measure, Scottish Water's performance lags behind that of all of the companies in England and Wales.

Table 14.9: Drinking water quality measures 2003-04

	Percentage of compliant samples	Performance index (as a percentage)	Difference
Scottish Water	98.97%		
England and Wales best	99.95%	99.95%	0.00%
England and Wales worst	99.70%	99.70%	0.00%
England and Wales median	99.92%	99.87%	0.05%

⁶ Customers who experienced interruptions of longer than 12 hours are given a greater weight in the calculation.

⁷ Excluding single large incidents the worst performing score would be 1.40 in 2003-04 and 0.61 in 2004-05.

Table 14.10: Drinking water quality measures 2004-05

	Percentage of compliant samples	Performance index (as a percentage)	Difference
Scottish Water	99.42%		
England and Wales best	99.97%	99.95%	-0.02%
England and Wales worst	99.91%	99.74%	-0.17%
England and Wales median	99.95%	99.84%	-0.11%

This determination allows for unprecedented funding to improve drinking water quality. We consider that the allowed for funding (capital expenditure and additional operating costs) is at least sufficient to meet the ministerial objectives. In this regard it is important to emphasise that we also allowed for additional operating costs to pursue alternative (and more economical) solutions for improving drinking water quality by improving operational practices.

We believe that our allowed for funding should ensure that Scottish Water can match the best performing water and sewerage company in 2004-05 by 2009-10.

Sewer flooding – overload

In 2004-05, Scottish Water reported that 110 of its connected properties were flooded due to insufficient capacity in the sewerage system. In 78 instances this flooding was the result of extreme weather conditions.

Table 14.11 compares Scottish Water's performance in sewer flooding caused by overload with that of the water and sewerage companies in England and Wales.

Table 14.11: Percentage of properties flooded (insufficient capacity) 2003-04 and 2004-05

	Percentage of connected properties flooded (insufficient capacity) 2003-04	Percentage of connected properties flooded (insufficient capacity) 2004-05
Scottish Water	0.0016%	0.0013%
England and Wales best	0.0006%	0.0003%
England and Wales median	0.0026%	0.0050%
England and Wales worst	0.0103%	0.0194%

Scottish Water performed well in this measure, with a score higher than the average score achieved by the water and sewerage companies in England and Wales.

This determination provides significant funding to alleviate sewer flooding. We expect further improvement in this measure, and consider that in achieving the ministerial objectives for the next regulatory control period, Scottish Water should have improved its performance and have just 0.001% of connected properties suffering from a severe flooding incident caused by overload.

Sewer flooding – other causes

In 2004-05, Scottish Water reported 354 incidents of sewer flooding caused by equipment failure (73); blockages (274) or collapses (7). 0.0149% of all properties connected to Scottish Water's sewerage network experienced a sewer flooding incident. Table 14.12 compares this performance with that of the companies south of the border.

Table 14.12: Percentage of properties flooded (other causes) 2003-04 and 2004-05

	Percentage of connected properties flooded (other causes) 2003-04	Percentage of connected properties flooded (other causes) 2004-05
Scottish Water	0.0126%	0.0149%
England and Wales best	0.0046%	0.0044%
England and Wales median	0.0114%	0.0119%
England and Wales worst	0.0162%	0.0161%

Scottish Water's performance on this measure is just below the England and Wales median.

We believe that Scottish Water has scope to improve the overall level of service provided to customers through changes in its operational practices. We recognise that such changes may require additional spending and we therefore allowed additional operating costs to facilitate this. We expect that Scottish Water should achieve a reduction to 0.01% on this measure by 2010.

Sewer flooding – at risk

In its 2004-05 Annual Return, Scottish Water reported that approximately 1,300 properties (0.0566% of the properties connected to Scottish Water's sewerage network) were at risk from flooding. Table 14.3 compares this performance with that of the water and sewerage companies in England and Wales.

Table 14.13: Percentage of properties at risk of sewer flooding 2003-04 and 2004-05

	Percentage of properties at risk of sewer flooding 2003-04	Percentage of properties at risk of sewer flooding 2004-05
Scottish Water	0.0466%	0.0566%
England and Wales median	0.0295%	0.0240%
England and Wales worst	0.0804%	0.0873%
England and Wales best	0.0144%	0.0116%

Scottish Water performs better than the worst performing company. However, compared with the best-performing company, almost five times as many of its properties are at risk of sewer flooding.

As noted above, we made significant funding available to alleviate sewer flooding. We expect significant improvement in this area and consider that, in achieving the ministerial objectives, Scottish Water should reduce the number of properties at risk to 0.033% by 2009-10.

Customer contact

We focused on performance in three areas: responses to billing contacts; responses to written complaints; and calls answered within 30 seconds. Scottish Water's performance and that of the companies in England and Wales is shown in Tables 14.14 and 14.15.

Table 14.14: Customer contact measures 2003-04

	Percentage of billing contacts dealt with within 5 days	Percentage of written complaints dealt with within 10 days	Percentage of telephone calls answered within 30 seconds
Scottish Water	81.4%	99.8%	84.5%
England and Wales best	100.0%	100.0%	98.9%
England and Wales median	99.8%	100.0%	94.7%
England and Wales worst	98.7%	99.6%	81.6%

Table 14.15: Customer contact measures 2004-05

	Percentage of billing contacts dealt with within 5 days	Percentage of written complaints dealt with within 10 days	Percentage of telephone calls answered within 30 seconds
Scottish Water	84.9%	99.6%	91.7%
England and Wales best	100.0%	100.0%	97.7%
England and Wales median	99.9%	99.9%	94.1%
England and Wales worst	98.8%	98.9%	73.9%

Scottish Water's performance in dealing with billing contacts is much poorer than that of the companies south of the border.

Scottish Water's performance in responding to written complaints is better. It deals with 99.6% of written complaints within ten working days. Its performance is however poorer than most companies in England and Wales.

Performance in answering telephone calls within 30 seconds varied considerably between companies, with the best performer achieving the standard for 97.7% of telephone calls and the worst for 73.9% of telephone calls. Scottish Water's performance is below the median for England and Wales.

We believe that Scottish Water's customers should experience best practice levels of service in this area. We can see no reason why Scottish Water should not always meet the standard for response times to billing contacts and written complaints. Similarly, we would expect Scottish Water to match the performance of the best performing company on answering telephone calls.

Sewage treatment works consent compliance

In its 2004-05 Annual Return, Scottish Water reported that 16.5% of its population equivalent was served by treatment works failing their consent conditions. Table 14.16 compares this performance with that of the companies in England and Wales.

Table 14.16: Percentage population served by works failing consent conditions in 2003-04 and 2004-05

	Percentage of equivalent population served by a works failing its consent condition 2003-04	Percentage of equivalent population served by a works failing its consent condition 2004-05
Scottish Water	19.90% ⁸	16.53%
England and Wales best	0.00%	0.00%
England and Wales median	0.15%	0.07%
England and Wales worst	1.30%	0.96%

Scottish Water's performance in this area is considerably worse than that of the companies operating in England and Wales.

Scottish Water noted in its representations to the draft determination that the ministerial objectives for sewage treatment would have little impact on compliance with its discharge consents. Scottish Water also stated that SEPA did not see compliance with discharge consents as a priority.

We are not persuaded by these assertions, although we do recognise that it would require a very significant improvement in compliance to improve Scottish Water's assessed performance in this area. Scottish Water would have to limit non-compliance to 4.9% in order to improve its score in this area. We accept that such a marked improvement is unlikely. However, we would expect to see a significant reduction in non-compliance with discharge consents.

Sewage sludge disposal

In its 2004-05 Annual Return, Scottish Water reported that no sludge was disposed of unsatisfactorily. This is also true for each company in England and Wales. Each company therefore performed equally well in this

measure. We expect Scottish Water to continue to match the companies in this measure.

Leakage

For each company, Ofwat sets a target for its economic level of leakage and monitors performance against this target. We do not yet have the information to allow us to calculate an economic level of leakage for Scottish Water. It is not possible, therefore, to compare its leakage performance to that of the companies south of the border.

Estimates of leakage⁹ from Scottish Water's supply pipes suggest that it is higher than that for other water companies (at 48%, compared with 32% for Thames Water, the worst performing company in England and Wales). It would seem very likely that Scottish Water's level of leakage exceeds the economic level. There is also no evidence to suggest that leakage levels in Scotland have improved since 1997, when targets were introduced in England and Wales. This would also suggest that Scottish Water's leakage is likely to be relatively high.

We have therefore assumed that Scottish Water's current leakage performance would only merit the minimum available score for this measure. As such, any improvement beyond this minimum position would increase Scottish Water's OPA score.

We consider that leakage beyond the economic level is unacceptable since this increases costs to customers and is potentially damaging to the environment. In our view, the ministerial objectives in respect of the Water Framework Directive are likely to require Scottish Water to make progress in reducing its level of leakage.

We provided additional operating costs and capital maintenance funding to Scottish Water to address leakage. As such, we would expect Scottish Water to:

- obtain accurate estimates of leakage, zone by zone, for review by the Reporter against best practice;

⁸ In its 2005 Annual Return Scottish Water corrected the figure of 6.5% for 2003-04, reported in its 2004 Annual Return.

⁹ Information from Ofwat June Return 2005 and Scottish Water's Annual Return 2004-05.

- provide us with a detailed assessment of the economic level of leakage for each zone, for us to review against best practice;
- produce a full action plan for achieving an economic level of leakage by 2014, including milestones to 2010, for review by us; and
- implement the action plan from April 2008.

We anticipate that this initiative should enable Scottish Water to achieve a significant increase in its OPA score for this measure.

It is also important to note that if Scottish Water makes progress in this area, it may reap benefits in reducing the investment that is required to upgrade water treatment works. This is because it will be able to design works to a lower capacity than was previously assumed. By reducing leakage, Scottish Water will also be able to generate savings on the chemicals it uses to treat drinking water and on electricity costs to pump water through the supply and distribution systems.

Pollution incidents

Ofwat's OPA measure includes the following:

- Category 1 and 2 pollution incidents (sewage);
- Category 3 pollution incidents (sewage);
- Category 1 and 2 pollution incidents (water).

In each case, there is a difference in the definition of an incident between Scotland and England and Wales. We intend to work with SEPA to resolve these differences, but unfortunately we cannot include this factor in our comparison of performance at this time.

Assessed customer service

This aspect of the OPA measures the quality of customer service that is delivered by the companies in England and Wales. It is based on assessments of seven aspects of customer service, including complaint

handling and services for disabled and elderly customers. WaterVoice (the customer representative organisation in England and Wales) carries out these assessments.

Ofwat does not publish information for the companies in England and Wales on 'assessed customer service'. We cannot, therefore, collect information on the quality of customer service on a consistent basis.

Overall performance assessment: a summary

We have reviewed Scottish Water's current and potential performance in each area of the OPA where we can measure performance on a consistent basis.

Table 14.17 shows the results of our analysis and our overall assessment. This analysis supports the revised target of 250 which we expect Scottish Water to achieve by 2009-10. We regard this target as the minimum level of performance that customers have a right to expect.

Table 14.17: Our assessment of elements of the OPA

Element	Performance in 2004-05	Assumed performance range by 2009-10	OPA score ¹⁰ range by 2009-10	Basis of assumed minimum performance
Inadequate pressure	0.48%	0.24% – 0.15%	21 – 27	Achieved through investment to meet Ministers' objectives and improved operational practice
Supply interruptions	1.8	0.5 – 0.4	33 – 34	Achieved through investment to meet Ministers' objectives and improved operational practice
Hosepipe restrictions	0	0	25	Maintains current performance
Drinking water quality	99.42%	99.8% – 100%	44 – 50	Water and sewerage company median in 2004-05
Sewer flooding (overloaded sewers)	0.0013%	0.001% – 0.0008%	25	Consistent with Ministers' objectives
Sewer flooding (other causes)	0.0149%	0.01% – 0.008%	30 – 33	Achieved through improvements in operational practice
Sewer flooding (at risk)	0.056%	0.033%	10	Consistent with Ministers' objectives
Company contact (response to billing contacts)	84.86%	99.81% – 100%	9	Scottish Water's business plan projection
Company contact (response to written complaints)	99.57%	99.90% – 100%	9	Scottish Water's business plan projection
Company contact (ease of telephone contact)	91.70%	95.00% – 100%	8 – 9	Scottish Water's business plan projection
Sewage treatment works compliance	16.53%	10.92% – 10%	5	Scottish Water's business plan projection
Sewage sludge disposal	0	0	12	Maintains current performance
Leakage score	15	40 – 50	20 – 25	Assumes performance within 10% of future leakage targets set by the Commission
Total minimum OPA score			252 – 275	

We expect Scottish Water to make year-on-year progress towards this target in four equal steps, from 2005-06, as set out in Table 14.18.

Table 14.18: Milestones for improvement in the OPA

2004-05 actual	2005-06	2006-07 milestone	2007-08 milestone	2008-09 milestone	2009-10 target
177	-	195	213	232	250

Guaranteed minimum standards (GMS)

The Commissioner agreed the introduction of GMS for the Scottish water industry in October 2000. These are the minimum standards of service that Scottish Water must meet, and which customers have a right to expect. Failure to comply with any of the standards entitles the customer to financial compensation.

The GMS are as follows:

- **planned interruptions** – give 48 hours notice of a planned interruption likely to last more than four hours and restore supply within the stated time;
- **unplanned interruptions** – restore supply within 12 hours of an unplanned interruption (or within 48 hours for a trunk main);
- **following an internal sewer flooding incident** – visit within three hours and solve the problem within eight hours, clean up the mess and refund the annual sewerage charge;
- **payment enquiries** – respond to a request to change the method of payment within five working days, and to other billing, charging and metering enquiries within ten working days; and
- **complaints** – respond fully in writing to a written complaint, or to a telephone complaint where a written response is requested, within ten working days.

Clearly, the GMS do not cover every situation in which poor levels of service arise. While we regard Scottish Water's performance in meeting the GMS as important,

¹⁰ OPA scores are rounded to the nearest whole number.

we believe that the OPA provides a more comprehensive picture of the level of service provided to customers.

As with financial performance, we share Ofwat's view that it is important to monitor the level of service that is provided to customers on an annual basis. Annual monitoring allows us to take any steps necessary to ensure that customers receive value for money.

Additional allowances to improve levels of service

Table 14.19 sets out the additional operating costs that we have allowed for in setting charges.

Table 14.19: Additional allowed for costs to improve levels of service

Item	2006-07	2007-08	2008-09	2009-10
Improved responsiveness to address levels of service	£3.0m	£1.0m	£0.0m	£0.0m
Alternative technical solutions to improve drinking water quality	£2.0m	£3.0m	£4.0m	£5.0m
Leakage reduction	£0.0m	£0.0m	£8.0m	£8.0m
Total additional allowance	£5.0m	£4.0m	£12.0m	£13.0m

We consider that these additional allowances should ensure that Scottish Water can make rapid progress in addressing leakage and improving its level of service to customers. In our view, our increase in operating costs should also ensure that Scottish Water does not feel constrained by operating cost efficiency targets to adopt high cost capital solutions to meeting the ministerial objectives when improved operational practice is likely to be perfectly adequate.

In this regard, it is important to note that Scottish Water's management does, of course, have discretion to use these additional operating costs to recruit extra front-line staff to assist in meeting ministerial objectives.

Our conclusions on the relative efficiency assessment

We reviewed the approach to assessing Scottish Water's relative efficiency that the Commissioner used in his draft determination. We considered carefully Scottish Water's representations on special factors and the adjustment for the scope of activities relating to leakage control costs. We are not persuaded that it is appropriate to make any material change in the Commissioner's assumptions.

We believe that the Commissioner's analysis represented a robust assessment of the efficiency gap that exists between Scottish Water and the leading companies. We believe that this efficiency gap was properly assessed on a like-for-like basis and took reasonable account of factors outside management control that can influence cost comparisons. In particular, we have noted that the Commissioner's conclusions were consistent with each of the approaches that were used to determine Scottish Water's relative efficiency. We therefore accepted the analysis of relative efficiency that is set out in Chapter 11.

Our conclusions on Scottish Water's scope to improve its relative efficiency

Scottish Water commented that it should only be required to close 48% of the assessed efficiency gap. It noted that Ofwat assumes that the companies will close 60% of the assessed gap over the five-year regulatory control period, but that since the regulatory control period is only four years in Scotland, the target should be reduced to 48% (four-fifths of Ofwat's expected closure). We note that Scottish Water did not include this representation in its summary of the minimum changes to the draft determination which it considered necessary.

Nonetheless, we are generally persuaded by Scottish Water's argument. We have, however, assumed that Scottish Water should close 50% of the assessed efficiency gap. This is because, according to Scottish Water's own forecast, it will have achieved much of the required efficiency improvement by 2005-06. In England and Wales, the companies would normally improve their

efficiency gradually over the regulatory control period. We consider that 50% closure of the gap should be regarded as the minimum acceptable level of performance that Scottish customers have the right to expect.

Our conclusions on the level of PPP costs to allow for

We reviewed the Commissioner's conclusions on the appropriate level of PPP costs to allow for. We also considered representations from Scottish Water and other stakeholders. In its summary of the minimum necessary changes to the draft determination, Scottish Water asserted that the final determination should allow for the increases in service fees that it believed would result from its obligations under the PPP contracts. Scottish Water claimed that the PPP costs baseline was not an accurate reflection of the underlying costs of the PPP contracts because not all of the contract obligations had applied in either 2003-04 or 2004-05. Scottish Water also expressed concerns about how PPP costs had been normalised for weather conditions in the draft determination.

We reviewed Scottish Water's representations and the information contained in its second draft business plan. We also considered Scottish Water's reported PPP costs for each year from 2002-03 and compared these to the expected budget for that year. We noted that Scottish Water's outturn costs for PPP were lower than its budget in each year. We outline the results of our analysis in Table 14.20.

Table 14.20: Comparison of budget and actual PPP costs (in outturn prices)

	2002-03	2003-04	2004-05	2005-06 ¹¹
Budget	£106.9m	£120.0m	£123.0m	£122.0m
Actual cost	£105.4m	£113.0m	£112.7m	£120.0m
Difference	-£1.5m	-£7.0m	-£10.3m	-£2.0m

We concluded that it is appropriate to allow for a modest increase of approximately £1 million in the allowed for PPP costs. We also allowed for additional PPP operating costs to address the shortfalls in performance of these contracts relative to the level of service required by the

ministerial objectives. This is shown in Table 14.21.

Table 14.21: Allowed for level of PPP operating cost (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Draft determination ¹²	£113.0m	£112.4m	£113.8m	£116.4m
Final determination	£113.9m	£113.5m	£114.0m	£115.9m

Summary of the allowed for level of operating costs

Table 14.22 summarises our allowed for operating costs.

Table 14.22: Allowed for operating costs (2003-04 prices, unless stated)

		2006-07	2007-08	2008-09	2009-10
	Baseline operating expenditure	£266.2m	£266.2m	£266.2m	£266.2m
Less	Efficiencies in the baseline	-£24.9m	-£28.0m	-£31.2m	-£34.3m
Plus	Assessed changes to baseline operating expenditure	£6.5m	£9.2m	£12.2m	£13.4m
Less	Efficiencies in assessed changes to the baseline	-£0.3m	-£0.7m	-£1.3m	-£1.7m
Plus	New operating expenditure	£3.2m	£4.0m	£6.2m	£14.5m
Less	Efficiencies in new operating expenditure	-£0.2m	-£0.4m	-£0.8m	-£2.3m
Plus	Extra allowed for operating expenditure	£5.0m	£4.0m	£12.0m	£13.0m
Equals	Sub-total operating expenditure	£255.4m	£254.2m	£263.3m	£268.8m
Plus	PPP operating expenditure	£113.9m	£113.5m	£114.0m	£115.9m
Plus	Inflation¹³ from 2003-04 (outturn prices)	£30.8m	£40.6m	£52.2m	£64.1m
Equals	Total allowed for operating expenditure (outturn prices)	£400.1m	£408.4m	£429.4m	£448.7m

¹¹ The 2005-06 'actual' cost is Scottish Water's latest forecast of the 2005-06 PPP charge.

¹² We assess PPP costs in outturn prices, in order to ensure consistency with the inflation terms of PPP contracts. In Table 14.21 we have restated the level of PPP costs allowed for in the draft determination to reflect the change from CPI inflation that we assumed in the draft determination to RPI in the final determination.

¹³ We have assumed annual inflation of 2.5% between 2004-05 and 2009-10.

Our final determination increases the allowed for level of operating costs by more than £21 million over the regulatory control period¹⁴. The draft determination allowed for an increase of 5.2% in real terms over the regulatory control period. The final determination has allowed for an increase of 8.4%. This increase is greater than the c. 6% which is allowed by Ofwat (despite the greater efficiency of the companies south of the border). We have also shown how most regulated companies have succeeded in reducing their operating costs in real terms during each previous regulatory control period.

We set out the Commissioner's allowed for level of operating cost and the difference between the draft and the final determination in Table 14.23. This includes the impact of the increase in the rate of inflation that was applied to these costs.

Table 14.23: Comparison of the allowed for level of operating costs after efficiencies (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Allowed for operating costs in the final determination	£400.1m	£408.4m	£429.5m	£448.8m
Allowed for operating costs in the draft determination	£392.5m	£402.0m	£413.5m	£430.3m
Change	£7.6m	£6.4m	£15.9m	£18.4m

Conclusion

We reviewed the Commissioner's conclusions on the level of operating costs for which it was appropriate to allow. We also carefully reviewed Scottish Water's representations and the material that it presented in its second draft business plan, as well as the representations of other stakeholders.

In our view, the Commissioner's approach was sound and we are content with his assessment of the efficiency gap. Our changes in this area are marginal and principally reflect the new information that has become available since the draft determination was published.

We agree with Faber Maunsell and the Reporter that it would be appropriate to allow some additional operating costs to ensure that operational practices (particularly in network management and at water treatment works) are sound. We made a relatively significant allowance for such costs. In our view these should allow Scottish Water to adopt operating cost solutions when these are the most cost-effective. In this regard, Scottish Water has flexibility and the resources to recruit extra front-line staff should this be an appropriate approach to addressing the ministerial objectives.

We also made an allowance to help Scottish Water to start to improve its level of service performance, as measured by the OPA.

Although we do not accept Scottish Water's representation that there should not be a scope reduction for active leakage control, we believe that after 2008-09 it would benefit both customers and the environment to make a significant allowance (£8 million a year) to cover the costs of active leakage control.

Our conclusions allow Scottish Water an increase of 8.4% in its operating costs. This is more than the c. 6% that Ofwat allowed the companies south of the border – despite the better efficiency of those companies. Given that both Scottish Water and the companies have successfully reduced their operating costs in real terms in each regulatory control period, this allowance would seem to leave scope for financial outperformance. Any such outperformance would be added to the gilts reserve agreed with the Scottish Ministers. This would reduce the exposure of customers in Scotland to any future operational shocks. As such, our approach addresses the representations of the customer panels.

¹⁴ The increases quoted here are from a base of £248 million in 2005-06, consistent with Scottish Water's business plan forecast.

Section 4: Capital expenditure

Chapter 15:

Introduction

Introduction

The capital investment programme is Scottish Water's largest single element of expenditure. In recent years, annual capital investment in Scotland has ranged from £350 million to £520 million. Ongoing investment is essential if we are to have a sustainable water industry that meets public health and environmental expectations.

It is necessary to invest in water and waste water assets for the following reasons:

- To maintain the current serviceability of the assets – the assets of any business need to be replaced at the end of their useful lives if the business is to continue.
- To improve the quality of service to customers and the public.
- To improve assets to comply with public health and environmental legislation.
- To respond to customers' changing demand patterns – the capacity of the assets may need to increase to meet both the demands of new customers and growth in usage from existing customers.

In February 2005, the Water Industry Commissioner for Scotland received draft Ministerial Guidance¹ which required that Scottish Water should be funded to enable it to deliver a series of essential investment objectives during the period 2006-10. Ministers also established a further series of desirable objectives which they required Scottish Water to deliver to the extent that it is reasonable to expect that they can be delivered efficiently and without projected charges to customers in the period 2010 rising by more than inflation. These draft objectives were confirmed in the directions issued in September 2005. The most substantive change was a requirement to make a reasonable cost contribution towards Part II connection costs².

Our role is to calculate the lowest reasonable overall cost of meeting the ministerial objectives. We have therefore scrutinised the proposed investment plan and the proposed level of operating costs in the light of the final directions issued by Ministers. This has allowed us to reach a view on the lowest reasonable overall cost of delivering both the 'essential' and 'desirable' ministerial objectives.

Structure of this section

In this section, we provide our assessment of the capital investment programme that is required to meet the objectives for the water industry of the Scottish Ministers. It is, however, important to review these conclusions in the light of our decisions on operating costs, which we outlined in the previous section. This section comprises six chapters:

- Chapter 15 is this introduction.
- Chapter 16 summarises the conclusions of the Water Industry Commissioner for Scotland in his draft determination concerning capital investment.
- Chapter 17 outlines new information that has become available since the Commissioner published his draft determination.
- Chapter 18 summarises Scottish Water's representations on the allowed for capital expenditure in the draft determination.
- Chapter 19 summarises the representations that we have received from other stakeholders.
- Chapter 20 outlines conclusions following our review of the capital investment programme in the draft determination and the representations from stakeholders.

¹ Section 56A of the Water Services etc. (Scotland) Act 2005.

² In line with the requirements set out in the Water Environment and Water Services Act 2003, Scottish Water will be required to make a 'reasonable cost' contribution to the new connections to the water and sewerage system. The extent of this contribution will be governed by regulations developed by the Scottish Executive.

Chapter 16:

Conclusions of the draft determination¹

Introduction

Scottish Ministers defined the investment outputs that Scottish Water had to deliver in draft guidance issued in February 2005. In their second draft business plan, submitted in April 2005, Scottish Water set out the detailed investment that it considered would be necessary to meet these investment objectives. This investment was in excess of £3.3 billion in 2003-04 prices.

The Water Industry Commissioner completed his draft determination of charges for the 2006-10 regulatory control period. The Commissioner allowed for a much lower level of capital expenditure, but noted that he had set charge caps that were consistent with the lowest reasonable overall cost of delivering both the 'essential' and 'desirable' ministerial objectives.

This chapter explains the Water Industry Commissioner's review of the capital programme submitted by Scottish Water and how he assessed the allowed for level of capital expenditure. His analysis also reviewed the scope for capital efficiency in Scottish Water's investment proposals.

Scottish Water's investment plan was scrutinised in detail by the Reporter, the quality regulators (the Scottish Environment Protection Agency, SEPA, and the Drinking Water Quality Regulator, DWQR) and by the Commissioner. The Reporter raised a number of concerns about the scope and composition of the proposed investment programme. The Commissioner also asked two firms of engineering consultants and Ofwat to assist him in a more detailed review of the capital programme.

The chapter begins by describing the approach used by the Commissioner, continues with an explanation of how he set an allowance for capital maintenance and concludes with a description of his conclusions on the enhancement investment programme.

Approach to assessing allowed for capital expenditure

For capital maintenance, the Commissioner took account of the four-stage process that Ofwat used in its 2004 price review². This approach considers both historic levels of capital maintenance expenditure and the changes in the future that are likely to affect the appropriate level of capital maintenance expenditure required. As there is no reliable record of historic capital maintenance expenditure in Scotland, the Commissioner used historic levels of expenditure in England and Wales combined with the characteristics of Scottish Water's asset and customer bases to assess a 'base' expenditure requirement.

For future capital maintenance expenditure, there was only limited serviceability information available in Scotland. The Commissioner therefore took into account the information available and the views of the Reporter and the quality regulators when assessing the need for additional capital maintenance. The Commissioner considered that the resulting increases in allowed capital maintenance investment should ensure that Scottish Water's assets would at least maintain their serviceability. He also noted that the on-going enhancement investment programme should lead to a significant increase in the serviceability of the overall asset base.

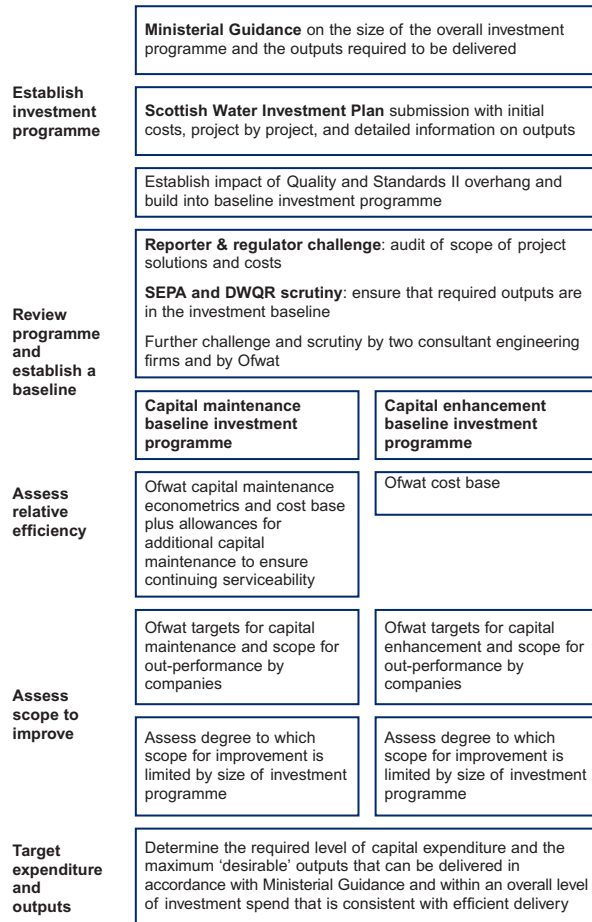
The Commissioner used Ofwat's cost base approach to assess Scottish Water's relative efficiency in capital expenditure. The allowed for level of capital maintenance and capital enhancement expenditure assumed that Scottish Water improves its efficiency over the regulatory control period.

Figure 16.1 sets out the process the Commissioner undertook in carrying out his analysis.

¹ Volume 5 of the Draft Determination set out in full the conclusions of the Water Industry Commissioner for Scotland. The full methodology was described in Volume 5 of the methodology consultation – 'The scope for capital investment efficiency'. This chapter focuses on an overview of the approach and the main conclusions reached by the Commissioner.

² Ofwat's approach is described in the publications '*Maintaining water and sewerage systems in England and Wales: Our proposed approach for the 2004 periodic review*' (May 2002) and '*Setting the price limits for 2005-10: Framework and approach – a consultation paper*' (October 2002)

Figure 16.1: Framework for capital investment targets



Establishing the initial baseline investment programme

The Commissioner explained that the baseline capital investment programme should contain the detailed list of capital projects that Scottish Water would be required to deliver under its regulatory contract for 2006-10.

Review of the baseline

All regulators review the draft investment programmes that regulated companies provide³. The Commissioner's aim was to ensure that customers and stakeholders receive the maximum possible benefit from Scottish Water's capital investment.

This approach required that the analysis of efficiency was appropriate and consistent with the goal of improving value for money to customers. There is clearly no point in delivering an ineffective investment plan efficiently.

The Commissioner noted that his Office did not have detailed technical knowledge of the projects that comprise the investment programme, nor of their impact on water quality and the environment. His Office therefore worked closely with the Reporter, SEPA and the DWQR to review Scottish Water's investment proposals.

The Commissioner sought assurances from both SEPA and the DWQR that the proposed 'quality' element of Scottish Water's investment proposals would meet the objectives outlined in the February Ministerial Guidance.

Given the very high cost of the investment included in Scottish Water's second draft business plan, and the concerns expressed by the Reporter, the Commissioner contracted Black and Veatch and Faber Maunsell to conduct a more detailed review of the investment programme. He also asked Ofwat to assist him in reviewing the programme and in assessing the cost and scope of the proposed investment.

The Commissioner asked both the Reporter and his independent consultants to use the following criteria in their review of the investment programme:

- Is the programme sufficiently well defined to allow customers and stakeholders to monitor delivery? In particular, does it meet the level of definition set out in our guidelines?
- If delivered in full, does the proposed programme meet the objectives set out in ministerial guidance? If not, what are the omissions? If so, does it exceed the requirements? In particular, do the quality regulators, SEPA and the DWQR, agree that the relevant quality objectives will be met by the proposed investment?

³ A description of the reviews carried out by Ofwat and the Office of the Rail Regulator is provided in Volume 5 of our methodology consultation: 'Our work in regulating the Scottish water industry: The scope for capital investment efficiency', Chapter 10, Section 10.3.

- Are there projects in the programme that do not contribute to the required objectives?
- Are there errors in the programme; for example, in the identification of projects and the associated outputs?
- Is the programme properly costed?
- Are the solutions proposed by Scottish Water appropriate?
- Do they represent best practice?
- Are the proposed solutions supported by the DWQR and SEPA?
- Have measurable, defined outputs been allocated to the projects in the programme?
- Do the projects have clearly defined delivery dates?
- Are the delivery dates realistic, both in terms of individual project construction times and the overall capacity of the industry to deliver the programme efficiently?

The process of reviewing the investment programme provided clear evidence of over-scoping within the second draft investment plan.

Establishing the scope for efficiency

In calculating the scope for efficiency in the baseline investment programme, the Commissioner explained that his approach had been informed by Ofwat's analysis for the 2004 price review in England and Wales.

Ofwat makes separate assessments of efficiency for capital maintenance and capital enhancement investment. The Commissioner also made two separate assessments.

Assessing the efficient level of capital maintenance

The Commissioner's methodology for determining the efficient level of capital maintenance expenditure included the following stages:

- An assessment of the level of capital maintenance expenditure required by Scottish Water, given its current asset base. This assessment was informed by Ofwat's capital maintenance econometric models.
- An adjustment to the required level of capital maintenance expenditure to take account of any circumstances specific to Scotland that could affect Scottish Water's costs.
- An adjustment to the required level of capital maintenance expenditure to take account of Scottish Water's current higher cost base relative to the companies in England and Wales. This adjustment helps to ensure that Scottish Water maintains the serviceability of its asset base.

Validating the results of the econometric assessment

The Commissioner expressed his confidence that his approach was robust. To validate the econometric assessment, he carried out a separate series of high-level comparisons between his econometric assessment of the appropriate level of capital maintenance required by Scottish Water and the historic and planned levels of capital maintenance expenditure in England and Wales. In these comparisons he took account of:

- the value of the asset base, and
- the number and type of assets.

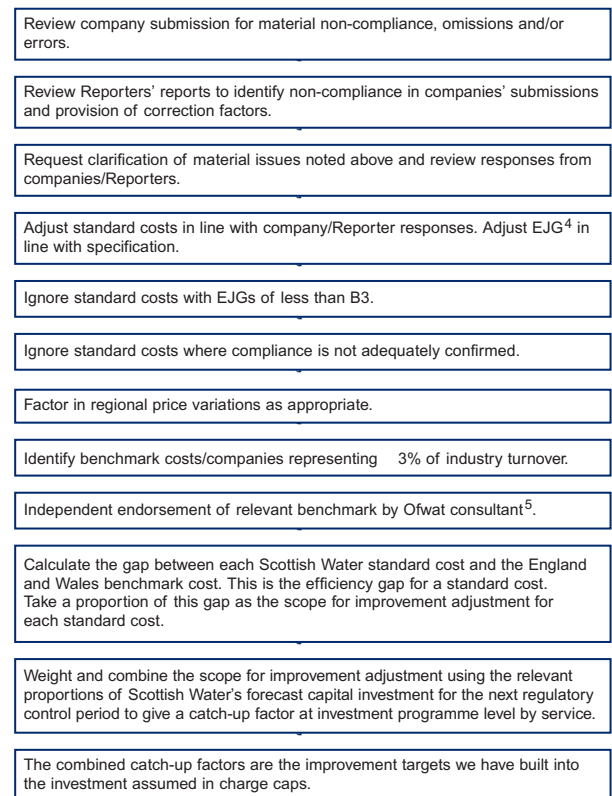
Assessing efficiency for capital enhancement projects

The Commissioner used Ofwat's cost base approach to benchmark Scottish Water's efficiency in delivering capital enhancement projects. He took account of special factors relating to the industry in Scotland.

The Commissioner recognised that this analysis is particularly specialised. He therefore commissioned independent consultants, Faber Maunsell, to carry out the analysis of relative efficiency. The results of their work were reviewed by SMC (Strategic Management Consultants) and by Ofwat to ensure that the Commissioner's approach was consistent with that adopted south of the border.

The Commissioner adopted Ofwat's cost base model and approach, and applied this to the capital investment plan proposed by Scottish Water. This means that the Water Industry Commissioner compared the standard costs prepared by Scottish Water to the basket of standard costs that Ofwat has received from the water and sewerage companies in England and Wales for the 2004 price determination. This comparison allowed him to assess the relative capital efficiency of Scottish Water compared with the other companies. The Commissioner explained that he had made this assessment by following the approach used by Ofwat in the 2004 determination, except that he did not adjust any of the benchmark standard costs previously chosen by Ofwat. The key steps in the approach are illustrated in Figure 16.2.

Figure 16.2: Key stages of the Commission's use of the Ofwat cost base approach



The impact of operating in Scotland – special factors

The Commissioner made it clear that he had endeavoured to consider all of the factors that influence investment costs. He made no allowance for factors that were within the control of management. He did, however, take account of factors that were beyond management control. Such factors could either increase or decrease the level of cost.

The Water Industry Commissioner asked Scottish Water, as part of its business plan submissions, to draw to his attention all factors that either increase or decrease costs. He expressed a desire to ensure that his efficiency targets neither unduly penalised nor rewarded Scottish Water.

⁴ Engineering Judgement Grades – these are 'confidence' grades assigned to the information contained in the submission.

⁵ With the completion of this step in the approach, Ofwat has derived robust benchmark costs. We have taken these benchmark costs and compared them with the standard costs submitted by Scottish Water, following the same approach that Ofwat has used. This assessment was carried out by our consultants with guidance from Ofwat.

The Commissioner explained how some commentators have argued that it is unfair to draw comparisons between Scottish Water's performance and that of the privatised water and sewerage companies in England and Wales. He therefore analysed any special factors identified by Scottish Water and took account of this analysis in drawing conclusions about the relative efficiency of Scottish Water. He concluded that this objective measurement of performance helped to ensure that customers should receive value for money.

Commentators who question this benchmarking process cite the following differences between the industry in Scotland and that south of the border:

- Scotland's geography (size, remote islands, long coastline, topography).
 - Its population settlement patterns (remote communities, concentrated dense urban areas).
 - The extent of the assets required to serve customers in Scotland (long mains, small isolated treatment works).
 - The quality of the assets inherited by Scottish Water (condition and performance of the mains, sewers, treatment works, pumps etc).
 - The nature of the customer base.
 - The fact that Scottish Water is in public ownership (political interest, Scottish Water's duty to Scotland, remit and freedom of management).
 - The short time that Scottish Water has had to mature and improve.
- What is the justification for the special factor? Scottish Water was required to set out whether the factors are the result of special obligations, the character of all or part of its customer base, or the result of historical development of the water and waste water systems in its area of supply.
 - How do the special factors impact on Scottish Water's costs?
 - How has Scottish Water sought to manage the additional costs arising from the special factors and to limit their impact?
 - Are there other special factors that reduce costs? If so, have these been quantified and offset against the upward cost pressures?

In its first draft business plan, Scottish Water did not include any special factor claims relating to capital investment, although it did make a 'regional adjustment' to its costs.

In its second draft business plan, Scottish Water made two claims for special factors in capital expenditure.

Applying the scope for efficiency

The Commissioner assessed the scope for efficiency for both capital maintenance and capital enhancement at a programme level. He made it clear that he had not sought to review the relative efficiency of individual projects. The project costs contained in the baseline programme are therefore the pre-efficiency costs. The Commissioner noted that it was for Scottish Water to determine how these same project outputs will, at a programme level, be delivered within the overall post-efficiency budget.

The Water Industry Commissioner for Scotland required Scottish Water to provide evidence in the following areas to justify an adjustment to the assessed capital efficiency based on a special factor:

The Commissioner explained that he had taken account of the scope for efficiency in the funding that he had made available for delivering the baseline capital investment programme. This is the funding included in the regulatory contract between Scottish Water and its customers. He further explained that this regulatory contract should be seen as the minimum acceptable level of performance. If Scottish Water were to fail to meet this minimum acceptable level of performance for investment delivery then Ministers would have to decide how this should be managed. The Commissioner expressed a clear view that customers should not be expected to pay twice for the required investment outputs.

Scottish Water's investment proposals

Scottish Water submitted its second draft business plan on 20 April 2005. Table C of the plan provides a project level breakdown of the proposed investment programme. The Commissioner's analysis focused on the investment programme set out in Table C of Scottish Water's second draft business plan. He noted that there were a number of apparent inconsistencies between Table C and other information contained in the business plan. Scottish Water has explained that this was a function of the timing of the preparation of Table C and the remainder of the draft business plan. It is important to note that Scottish Water submitted a business plan that would have delivered only the Ministers' essential objectives. However, in line with the business plan guidance of the Water Industry Commissioner, Table C lists all of the projects required to deliver both the 'essential' and the 'desirable' objectives outlined in the Ministerial Guidance.

All prices in this chapter are as at 2003-04 unless otherwise stated, and represent costs before efficiencies have been applied.

Table C also provides detailed information on the drivers and outputs associated with each project line in the programme.

Table 16.1 provides a breakdown of the 2006-10 expenditure in Table C for each of the major investment categories. Scottish Water estimated that the investment required to meet the Ministers' objectives was £3.37 billion. Such a programme would have been around £1 billion greater than that outlined in Scottish Water's first draft business plan. This plan would have required investment of £843 million per year, or around £340 each year for every connected property.

Table 16.1: Scottish Water second draft business plan investment proposals

(October 2003 prices)	£ million 2006-10
Maintaining current water and waste water services ⁶	£1,085m
Drinking water quality and resource enhancements	£1,064m
Environmental quality enhancements	£845m
Customer service improvements	£84m
Development constraints and growth	£221m
First time provision	£70m
Total Quality & Standards III essential plus desirable	£3,369m

In its second draft business plan⁷, Scottish Water gave the following reasons for the increase in investment from the first draft business plan:

- The appearance at a late stage of the Quality and Standards III process of significant new 'essential' objectives beyond those proposed in the first draft business plan.
- Differences in the timing of the 'essential' objectives between the two plans.
- Recently revised forecasts for capital inflation.
- A re-estimate of the costs required to complete Quality and Standards II⁸.

⁶ This includes investment of £84 million for 'Interruptions to supply', which Scottish Water has classified as a service improvement.

⁷ Scottish Water's second draft business plan submission, dated April 2005, Executive Summary, page A-12 Section A4.10.

⁸ These costs are detailed in Table E of the investment plan, not Table C, and therefore do not appear in the figures in Table 14.2.

The Commissioner published Scottish Water's second draft business plan in full on 16 May 2005. He also published an open letter to the Scottish Ministers⁹. In that letter he commented that he remained confident that the ministerial objectives could be achieved at significantly lower costs than those contained in Scottish Water's business plan. He noted that regulators had often reduced very substantially the cost of capital investment programmes, without there being an impact on the outputs that are delivered.

Table 16.2 shows the cost of projects in Table C of the second draft business plan, split by driver: capital maintenance, customer service, drinking water quality,

environmental, and others (such as development constraints).

Table C suggested that investment in drinking water quality and environmental improvement accounts for 57% of Scottish Water's estimated total programme cost. This reduced to 49% in the second half of the programme. Scottish Water noted in its second draft business plan that the balance of improvement investment was, in its view, skewed to the first regulatory control period.

Table 16.3 shows the cost and number of projects by subclass.

Table 16.2: Cost of projects, by driver

Type	Driver	Description	2006-10	Subtotals	2010-14	Subtotals
			£m	£m	£m	£m
CM	CM	Capital maintenance	1,084.8	1,084.8	930.0	930.0
Customer service drivers	CS1	Pressure	5.7	84.1	8.6	88.9
	CS2	Odour management	19.1		28.6	
	CS4	Business metering	0.7		1.0	
	CS11	Sewer flooding	58.6		50.7	
Drinking water quality drivers	DW1	Lead standard	20.9	1,063.7	152.9	326.0
	DW2	Trihalomethane standard	28.8		0.3	
	DW3	All other standards in the Drinking Water Directive	298.4		-0.0	
	DW4	Cryptosporidium	175.9		0.3	
	DW5	Iron and manganese	26.3		13.7	
	DW7	The Birds/Habitats Directive	56.2		14.4	
	DW8	Security of supply	0.0		8.5	
	DW9	Additional physical security	71.9		41.6	
	DW10	Raw water	0.0		0.9	
	DW11	Water fittings byelaws	4.1		4.1	
	DW13	Water aesthetic quality	277.5		8.2	
	DW15	Compliance with recommendations	3.1		3.1	
	DW16	Water Safety Plans	4.5		4.5	
	DW17	Cross connections	13.5		13.5	
	DW20	Flood Estimation Handbook	0.9		0.9	
	WR1	UKTAG guideline	60.6		15.3	
	WR2	Operational practice at reservoirs	8.0		40.6	
	WR3	Protect water quality	0.0		0.0	
	WR4	Water Framework Directive ecological objective	0.9		3.3	
	WR5	Compliance with water quality licences	12.5		0.0	
Environmental drivers	EC01	Urban Waste Water Treatment Directive	298.2	845.2	380.8	866.2
	EC02	Bathing Water Directive	146.7		2.6	
	EC03	Shellfish Waters Directive	14.3		37.8	
	EC04	Freshwater for Fish Directive	61.2		15.3	
	EC06	Sludge use in Agriculture Directive	0.0		74.6	
	EC07	Birds Directive	0.2		1.6	
	EC08	Habitats Directive	4.2		0.0	
	EC09	Dangerous Substances Directive	6.3		0.0	
	EC10	Water Framework Directive	240.9		345.5	
	EC11	Landfill Directive	3.5		0.0	
	EC12	Integrated Pollution Prevention D	9.4		0.0	
	NH01	Section 54 WIA (Scotland) 2002	4.5		4.3	
	WA01	Definition of Waste	1.6		3.3	
	WQ01	Water Environment and Water Services Act	42.2		0.4	
	WQ02	Environmental Act 1995, Section 34	12.0		0.0	
	FTP	FTP	First time provision		70.0	
RDC	RDC	Development constraints	221.4		229.0	
Total			3,369.3		2,453.8	

⁹ Available in Appendix 6 of the draft determination and on our website, www.watercommission.co.uk.

Table 16.3: Cost and number of projects, by subclass

Subclass	Cost 2006-10	Cost 2010-14	Cost Q&SIII	Number of projects 2006-10	Number of projects 2010-14
Cross connections	£13.5	£13.5	£26.9	1	1
Combined sewer overflow CM	£0.9	£1.2	£2.2	4	4
Combined sewer overflow completion	£0.2	£0.0	£0.2	1	0
Development constraints – Part 3	£66.9	£74.6	£141.4	4	4
Development constraints – Part 4	£144.0	£144.0	£288.1	4	4
Development constraints – water resources	£10.4	£10.4	£20.9	1	1
First time provision – Part 3	£40.2	£5.3	£45.5	3	3
First time provision – Part 4	£29.8	£8.4	£38.2	3	3
Internal flooding	£58.6	£73.1	£131.7	1	2
IPPC ¹⁰ schemes	£9.4	£0.0	£9.4	1	0
Landfill Directive	£3.5	£0.0	£3.5	1	0
Lead	£20.7	£152.8	£173.6	1	2
Low pressure	£5.7	£8.6	£14.3	1	1
M&G ¹¹ – Asset intelligence	£81.6	£44.5	£126.1	28	24
M&G – Health and safety	£49.5	£21.2	£70.7	22	22
M&G – IT	£84.9	£53.8	£138.7	32	30
M&G – Logistics	£15.7	£27.6	£43.3	24	24
M&G – Property	£29.8	£18.4	£48.1	124	108
M&G – Scientific	£4.6	£4.4	£9.0	8	8
M&G – Telemetry	£55.2	£22.7	£77.9	122	78
Metering	£6.3	£9.4	£15.7	2	2
Minor sewer collapse	£28.6	£28.7	£57.3	4	4
Odour management	£19.1	£28.6	£47.7	1	1
Outfall CM ¹²	£1.8	£2.9	£4.7	4	4
Overlap removal	£-51.2	£-0.5	£-51.8	1	1
Septic tank CM	£5.3	£5.3	£10.7	1	1
Septic tank upgrade	£12.0	£3.6	£15.7	8	3
Service relocation	£6.6	£4.3	£10.8	5	5
Sewage pumping station CM	£7.9	£30.7	£38.6	5	5
Sewage pumping station reactive	£1.8	£1.8	£3.6	1	1
Sewage pumping station refurbishment	£2.1	£0.0	£2.1	5	0
Sewer rehabilitation	£104.8	£103.2	£207.9	97	10
Sewer structures CM	£7.2	£7.9	£15.1	4	4
Sludge CM	£2.1	£21.7	£23.8	5	5
Sludge conditioning centre	£0.0	£22.7	£22.7	0	11
Sludge digestion	£0.0	£74.0	£74.0	0	6
Sludge treatment centre	£0.0	£36.6	£36.6	0	4
Sludge centre – PPP	£8.3	£23.7	£32.0	1	1
Sewage treatment works CM	£29.7	£102.7	£132.4	5	6
Sewage treatment works completion	£2.5	£0.0	£2.5	9	0
Sewage treatment works reactive	£6.7	£6.7	£13.3	1	1
Sewage treatment works refurbishment	£19.7	£0.0	£19.7	25	0
Sewage treatment works upgrade	£101.4	£376.3	£477.7	39	112
Sewage treatment works – PPP	£28.0	£31.8	£59.8	2	1
Sustainable urban drainage systems CM	£5.0	£5.0	£10.0	4	4
Scottish Water Wide	£76.4	£54.5	£130.9	6	4
Unsatisfactory intermittent discharge – dual manhole	£0.6	£0.0	£0.6	14	0
Unsatisfactory intermittent discharge – overflow	£624.7	£271.4	£896.1	272	212
Unsatisfactory intermittent discharge – surface water outfall	£4.4	£5.5	£9.9	5	14
Unsatisfactory intermittent discharge – PPP	£50.9	£0.0	£50.9	3	0
Water infrastructure CM	£183.6	£149.1	£332.7	20	15
Water mains rehabilitation	£175.8	£108.4	£284.2	135	5
Water pumping station CM	£14.1	£17.2	£31.3	1	1
Water pumping station refurbishment	£6.7	£0.0	£6.7	7	0
Water resources	£134.7	£74.0	£208.7	6	4
Water resources CM	£15.3	£17.7	£33.0	3	3
Water storage	£15.7	£15.7	£31.3	1	1
Water treatment works CM	£15.2	£84.3	£99.5	1	1
Water treatment works completion	£12.0	£0.0	£12.0	32	0
Water treatment works new	£6.7	£0.0	£6.7	3	0
Water treatment works refurbishment	£3.2	£0.0	£3.2	3	0
Water treatment works upgrade	£932.3	£8.3	£940.5	229	39
Others	£16.3	£36.1	£52.4	11	9
Total	£3,369.3	£2,453.8	£5,823.1	1,367	819

¹⁰ Integrated pollution protection and coastal.¹¹ Management and general.¹² Capital maintenance.

This analysis highlighted a number of areas where Scottish Water was proposing significant investment during the 2006-10 period. In this regard it was important to remember that the regulatory control period in Scotland is four years, whereas in England and Wales it is five.

Scottish Water planned to invest £932 million in upgrading water treatment works. This exceeded the total quality investment planned at water treatment works in the whole of England and Wales in the period 2005-10¹³.

Similarly, Scottish Water claimed that it needed to spend £625 million on improving unsatisfactory intermittent discharge (UID) projects. By comparison, the total spend of the ten water and waste water companies in England and Wales will be around £816 million¹⁴ in the 2005-10 period.

Ensuring adequate programme definition

In setting out his guidance for Scottish Water's second draft business plan¹⁵, the Commissioner included a requirement to provide a detailed list of capital projects and their associated drivers and outputs. He saw this as essential to ensuring that customers receive value for money and that stakeholders can monitor Scottish Water's performance in delivering the investment programme.

The Commissioner's initial assessment of Scottish Water's second draft plan submission indicated that the level of definition in its investment programme did not comply with our requirements. He wrote to Scottish Water¹⁶ to ask it to provide information at a sufficiently detailed level for him to analyse the programme and for stakeholders to monitor programme delivery.

Scottish Water responded, saying that it was not possible, or in some cases desirable, to provide further detail on its proposed investment programme. It cited a current lack of clarity as to which projects would comprise the programme, as well as concerns about putting site-specific information into the public domain. Scottish Water did, however, offer to provide sight of the database from which it had developed its investment programme submission.

The Commissioner wrote on two further occasions^{17,18} to ask Scottish Water to submit the database. Scottish Water responded on 3 May 2005, providing its database but expressing concerns about the use and publication of this information.

The Commissioner wrote again in early May. He requested further disaggregation of 14 project lines totalling some £322 million of expenditure and better definition of the investment required at or adjacent to PPP sites. The Office's continuing review had demonstrated that Table C had provided sufficient disaggregation of the water treatment works and UID programmes. The Commissioner agreed with Scottish Water that the ministerial investment requirements for the relief of development constraints and malodour abatement could not be determined in detail at this stage. In addition, the Commissioner explained that he would use Ofwat's econometric models to define an appropriate level of capital maintenance. As such, further definition of the proposed capital maintenance investment programme would not be required.

Scottish Water provided the requested information on 12 May 2005.

As a result, the Commissioner believed that there was sufficient disaggregation of the investment programme to analyse the scope, design, efficiency and effectiveness of Scottish Water's proposed investment to meet the Ministers' objectives.

¹³ In England and Wales the whole industry is proposing to deliver a £689 million (post-efficiencies) programme of drinking water quality treatment improvements (2002-03 prices) at 239 sites.

¹⁴ In 2002-03 prices.

¹⁵ This guidance is available on our website www.watercommission.co.uk.

¹⁶ Regulatory letter WIC 62, 'Request for increased information on Scottish Water's 2nd draft business plan investment programme'.

¹⁷ Regulatory letter WIC 62.1.

¹⁸ Regulatory letter WIC 62.2.

Technical review of the programme

The Commissioner engaged independent engineering consultants, Faber Maunsell and Black and Veatch¹⁹, to review the projects contained in Table C. In particular, he asked the consultants to focus on the following issues:

- Errors and duplication

A number of what appeared to be duplicate lines were immediately evident in Scottish Water's programme. The programme also included investment at PPP works, which the Commissioner did not consider should be funded through direct capital investment.

- Water treatment works

Investment on drinking water quality accounted for just under a third of Scottish Water's total £3.37 billion investment programme for 2006-10. The Reporter had identified concerns regarding the extent to which strategic solutions were being employed and the scope of the projects.

- UID programme

Costs in this area totalled £681 million for the 2006-10 period. This comprises £676 million for unsatisfactory combined sewer overflows (CSOs) and emergency overflows, £4 million for unsatisfactory surface water outfalls and £0.6 million for dual manhole problems. Unit costs for the 275 unsatisfactory CSO projects in the scheme, at more than £2.4 million per project, appeared to be very high. There were also concerns about the extent to which the requirements in this area had been subject to proper modelling.

- Water Framework Directive investment

Investment associated with the Water Framework Directive driver (EC10) reported in Scottish Water's programme amounted to some £241 million. Some of this investment related to the UID investment programme discussed above. Scottish Water's programme also contained a further £134 million of investment on projects relating to the Water Framework Directive with drinking water quality drivers. The Commissioner was also concerned to understand whether this investment was consistent with the Ministers' objectives.

- Development constraints and first time connection

Scottish Water estimated investment to resolve development constraints and first time connections at £291 million. The scope and method of assessing the required level of investment appeared to be questionable.

The Water Industry Commissioner sought advice from the independent consultants on the extent to which there were:

- duplication or errors in the listing of projects and outputs in the programme;
- projects that did not meet the objectives set out in the Ministerial Guidance;
- over-scoping of requirements;
- inappropriate solutions;
- insufficient definition, leading to an inability to monitor delivery;
- inappropriate use of generic costings;
- incorrect interpretation of standards or of the requirements of the quality regulator;
- wrong sizing or inappropriate specification of requirements; and
- duplication of outputs from Quality and Standards II.

¹⁹ Black and Veatch were sub-contracted to Faber Maunsell.

The consultants held a series of meetings with the Scottish Water staff who had been involved in developing the investment plan contained in Table C. They also carried out 36 site visits to water treatment works, undertook desk top assessments of a further five sites and reviewed a wide range of information provided by Scottish Water concerning the methodology employed in defining and costing the investment programme.

The Commissioner discussed the results of the consultants' work at a series of workshops with SEPA (for the UID and Water Framework Directive programmes), DWQR (for the drinking water quality investment) and the Scottish Executive (for development constraints and first time provision). At these meetings the Commissioner emphasised that his role was to ensure that the Ministers' objectives would be met at the lowest reasonable overall cost.

The Commissioner considered that Faber Maunsell's thorough and independent assessment confirmed many of the concerns identified by the Reporter. As such, the Commissioner considered that it provided a strong evidence base for the adjustments that he made to Scottish Water's proposed investment programme.

As noted earlier, Ofwat helped the Commissioner to assess how Scottish Water's investment proposals compared with those of the companies in England and Wales. In particular, they helped him to ensure that a broadly consistent approach to assessing investment requirements has been applied north and south of the border²⁰.

The use of the Reporter and of independent engineering consultants is consistent with Ofwat's approach to assessing the investment proposals of the companies in England and Wales. Ofgem and the Office of Rail Regulation (ORR) have also used technical consultants to carry out detailed project level reviews of the investment proposals of regulated companies.

Allowed for capital maintenance

Ofwat uses econometric modelling in its assessment of the relative efficiency of the capital maintenance expenditure of the water and sewerage companies in England and Wales. This method uses statistical analysis to establish relationships between the capital maintenance expenditure undertaken by companies and a number of factors that might drive costs, which are common to all companies. Once the relationships have been established, the models can be used to predict the appropriate level of expenditure for each company. This predicted expenditure can then be compared directly with the companies' actual expenditure. Information to allow this comparison is collected from each company in a systematic way.

The capital maintenance econometric models that are used by Ofwat were first used for its 1999 price review and were published in April 1998²¹. In 2003, Ofwat conducted a detailed review of the models, in consultation with industry representatives, in preparation for its 2004 price review. Ofwat asked Professor Mark Stewart from the University of Warwick independently to verify the revised econometric models. Ofwat published the final form of its capital maintenance econometric models for the 2004 price review in January 2005²².

The capital maintenance models

Each of the nine capital maintenance models includes a relationship between the capital maintenance expenditure reported by the companies and the factors that might drive costs. The factors must have a clear impact on costs but should also be as far outside the discretionary control of the management of the company as possible.

²⁰ The role of Ofwat in challenging the scope of the investment programme is wider than the role of the new Water Industry Commission in Scotland.

²¹ 'Assessing the scope for future improvements in water company efficiency: a technical paper', Ofwat, 30 April 1998

²² 'Water and sewerage service unit costs and relative efficiency 2003-04 report', Ofwat, January 2005.

The factors that might drive costs that are used within the econometric models are known as explanatory factors. Ofwat takes great care to define the potential explanatory factors that might prove to be useful in the econometric analysis. Information for a range of possible factors is systematically collected from each company to ensure that robust comparisons can be drawn. The process of establishing the econometric models looks at the correlation between expenditure and different combinations of explanatory factors, and selects the best explanatory factors for each model.

The models chosen by Ofwat for the 2004 price review were established using the potential explanatory factors from the England and Wales companies. Ofwat did not include any information from Scottish Water in identifying the best explanatory factors for each model.

Ofwat provides each company with an opportunity to identify 'special factors' that apply to them. Such 'special factors' might reduce the validity of the modelled results. This opportunity to assess and include special factors helps to reduce the scope for any potential inaccuracies in the process. Scottish Water had a similar opportunity to identify special factors.

The models themselves take different forms. These are summarised in Table 16.4.

Table 16.4: Summary of econometric models and explanatory factors

Model	Model type	Explanatory factors
Water resources and treatment	Unit cost	Total connected properties
Water distribution infrastructure	Log linear	Length of main; total connected properties
Water distribution non-infrastructure	Log linear	Pumping station capacity; water service reservoir and water tower storage capacity
Water management and general	Log linear	Billed properties; proportion of billed properties that are non-household
Sewerage infrastructure	Log linear	Length of sewer; number of combined sewer overflows; proportion of critical sewers
Sewerage non-infrastructure	Unit cost	Number of pumping stations
Sewage treatment	Log linear	Total load; total number of works
Sludge treatment and disposal	Unit cost	Total weight of dry solids
Sewerage management and general	Unit cost	Billed properties

Criticisms of the capital maintenance econometric models

As part of its first draft business plan, Scottish Water submitted a number of papers by academics and consultants, which criticised the Ofwat econometric models. The majority of the papers submitted by Scottish Water were written for the water and sewerage companies in England and Wales or for Water UK, the industry trade body. The majority of the papers were also submitted to Ofwat, two of them at the 1999 price review²³ and the remainder in the run up to the 2004 price review. Only one paper specifically addressed the use of the econometric models in Scotland.

The Commissioner noted that although the papers are critical of the models used by Ofwat, none of them contained proposals for alternative ways to assess the appropriate level of capital maintenance.

Scottish Water raised a number of issues that are relevant to our use of Ofwat's capital maintenance econometric models. These issues were as follows:

- the choice of explanatory factors and type of model;
- the poor explanatory power of the models;
- the susceptibility of the econometric models to inconsistencies in information;
- changes in the models' specification over time;
- the assumption that the residual represents inefficiency only and that this can then be used to set efficiency targets for the water and sewerage companies;
- the models are backward looking and reflect only historic maintenance levels; and
- the application of models to Scottish Water that were derived using information from the companies south of the border.

The Commissioner addressed each of these issues in his draft determination.

²³ Davidson, "Ofwat efficiency assessment using econometric models: a comment" (1999) and Montgomery Watson "Water distribution cost drivers" (1999).

The choice of explanatory factors and type of model

The most common criticism of the models is that they do not accurately reflect the true cost drivers in the water and sewerage industry. Scottish Water cited papers by NERA²⁴ and Professor John Cubbin²⁵ of City University, which argued that the capital maintenance models omit key cost drivers such as asset age and condition.

Ofwat remains confident²⁶ that its models are fit for purpose and that it is not misusing the information it collects. The Commissioner noted that in 2003-04, Ofwat allowed 19 company claims for special factors. The Commissioner agreed with Ofwat that analysis of suggested 'special factors' allows more explanatory factors, specific to individual companies, to be taken into account.

The poor explanatory power of the models

Scottish Water argued that the capital maintenance econometric models have been the subject of especially heavy criticism, as the statistical explanatory power of these models is particularly poor. Scottish Water cited comments made by the Competition Commission in its reviews of the price caps for Mid Kent Water and Sutton & East Surrey Water in August 2000, where it noted that it had: *"some reservations concerning the consistency and reliability of the capital maintenance econometric models"*.

The Commissioner noted these concerns but went on to explain that the purpose of Ofwat's econometric models was to understand the impact of factors that are outside the control of management. The models therefore, by design, do not consider some key factors that affect costs. Factors such as:

- the maintenance policy of the business;
- the extent to which the business accepts risk;
- its employment policies; and
- its choice of suppliers etc

will all affect the level of cost incurred by the company, but they are also all within management control. Objective benchmarking requires that the models be based on explanatory factors that are as far outside the discretionary control of management as possible and only test the impact of these external factors.

The susceptibility of the models to inconsistencies in information

Scottish Water also argued that there was substantial scope for differences in cost allocation practices both for individual companies over time and between companies. This would affect the reported expenditure used in the modelling process. However, Scottish Water did recognise that there had been considerable progress in ensuring that cost allocation policies in England and Wales were consistent. Scottish Water also commented that the models did not appear to take account of trade-offs between, for example, different time periods or cost and quality. Scottish Water claimed that this could artificially change or bias results.

Ofwat has carefully reviewed the companies' accounting and cost allocation practices, and has made specific adjustments where necessary to correct for differences between the companies' reported expenditure. Regulatory accounting guidelines have been in place for well over a decade in England and Wales, and the scope for material variations in accounting practice between the companies and over time is likely to be small. The Reporter for each company is required to review and report on the cost allocation policies and practices of the companies south of the border.

Trade-offs may indeed be useful ways in which companies can optimise overall 'whole life' costs. Ofwat's approach clearly defines the separate assessment of capital and operational cost efficiency. Ofwat does not adjust allowed for expenditure based on an assessment of the optimum whole life cost. It is for the company to identify the lowest whole life cost solutions. This is consistent with the selection of explanatory factors outside the control of management.

²⁴ NERA *'An investigation into the robustness of Ofwat's comparative efficiency analysis of capital maintenance expenditure'*, 1999, a report for Water UK.

²⁵ Professor John Cubbin *'Assessing Ofwat's efficiency econometrics'*, 2004.

²⁶ Ofwat, *'Future water and sewerage charges 2005-10: Final determinations'*, December 2004, page 250.

Changes in the models' specification over time

Scottish Water noted that Ofwat had recently changed a number of its capital maintenance models. Scottish Water argued that cost relationships in the water and sewerage sector can be expected to change only slowly over time unless exceptional technological progress takes place. Scottish Water considered that changes to the models suggested that the statistical power of these models has weakened over time. It concluded that the former models must have been inaccurate.

The Commissioner was not persuaded by this line of argument. He accepted that technology in the water and sewerage industry may change only relatively slowly; however, there are a number of factors that are likely to change during a five-year regulatory control period. He noted, for example, that priorities for maintenance investment are likely to change as companies understand more about the condition and performance of their assets over time. Companies are gaining greater knowledge about the impact of their assets on customer service and on compliance with drinking water and environmental standards. The Commissioner also noted that the expectations of customers were becoming more demanding and quality standards were getting tighter. These changes, he reasoned, were likely to affect how companies target investment, and may affect the level of investment they needed to make. The companies' use of the UKWIR common framework approach may also change the cost structure of the industry for capital maintenance.

Interpretation of the residual²⁷

Scottish Water argued that the residual from the econometric analysis should not be interpreted wholly as representing efficiency. In a report for Water UK²⁸, Professor Cubbin breaks the residual down between six factors: omitted variables, poor proxy, sampling error, measurement error, mathematical form and efficiency. The author carries out his analysis for each of the nine capital maintenance expenditure models. He concludes

that for the capital maintenance expenditure models, efficiency accounts for between 14% and 28% of the residual on the water service, and for between 20% and 34% of the residual on the sewerage service.

Ofwat reviewed Professor Cubbin's paper and concluded that uncertainties of this scale are unlikely under normal operating circumstances²⁹. Ofwat also pointed out that it employs other mechanisms and checks, which ensure that potential distortion and uncertainty are allowed for. Ofwat has taken a number of steps to ensure that the models are used appropriately. It carefully adjusts the expenditure to allow for several identifiable distorting factors and makes an allowance for uncertainty. It also allowed 19 claims for company-specific special factors in 2003-04. These steps address any issues concerning omitted variables. Company-specific special factors may reduce the impact of the econometric assessment on a company by a significant amount. The use of special factors may significantly reduce the assessed efficiency gap.

Similarly, Ofwat does not set efficiency targets to close 100% of the assessed efficiency gap. At the 2004 price review, Ofwat assumed that companies could move at least 40% towards the benchmark company as established by the capital maintenance econometric relative efficiency assessment. Ofwat views the remaining 60% as an incentive to the company to beat the target assumed in price limits. Incentive-based regulation seeks to reward a management that can outperform its regulatory contract. There would be little opportunity to reward companies if targets were set at the theoretical maximum scope for improvement.

²⁷ The residual is the difference between a companies reported actual costs and the costs predicted by the econometric models.

²⁸ Professor John Cubbin, *Assessing Ofwat's efficiency econometrics*, March 2004.

²⁹ Ofwat, *Future water and sewerage charges 2005-10: Final determinations*, December 2004.

The models are backward looking and reflect only historic maintenance levels

Scottish Water stated that the econometric models are backward looking, and therefore reflected historic maintenance levels. It noted that Ofwat's price limits set in 2004 allowed significant increases in funding for capital maintenance. Ofwat allowed companies additional funding in price limits to the extent that companies could justify increases through their application of the UKWIR common framework approach. The Commissioner adopted an approach for assessing Scottish Water's application of the common framework that is consistent with Ofwat's.

Applying models that were derived using information for England and Wales to Scottish Water

Only one of the papers that were submitted by Scottish Water specifically addressed the Commissioner's use of the Ofwat models in regulating Scottish Water. This paper³⁰, by Professor Cubbin, was an update of the earlier paper that he wrote for Water UK. The author did not specifically address the use of the capital maintenance models in Scotland but concluded that using operating cost models to regulate Scottish Water could introduce errors into the results. He claimed that this was because the models were developed specifically for the companies in England and Wales. The Commissioner noted that he addressed these criticisms during his consideration of special factors.

Special factors claimed by Scottish Water

Scottish Water presented claims for capital maintenance special factors relating to its large number of small water service assets. The Commissioner was not persuaded that this puts Scottish Water at a disadvantage. Many of these smaller assets are likely to be more basic and to require considerably less maintenance.

Scottish Water claimed that it was penalised in the econometric model for water distribution non-infrastructure because of its large number of small capacity service reservoirs and towers, relative to England and Wales. The model predicts costs as a function of pumping station capacity and water service reservoirs and water tower storage capacity. However, the evidence that Scottish Water presented to support its claim also showed that it has significantly more service reservoirs and water tower storage capacity, relative to its customer base, than any company in England and Wales. Scottish Water has provided no justification of this greater storage capacity. Taking this into account, the Commissioner concluded that the model rewards, rather than penalizes, Scottish Water.

The Commissioner noted that he would have liked to re-estimate the Ofwat capital maintenance models including explanatory variable and expenditure information from Scottish Water. He was not able to do this because the necessary historic information from Scottish Water did not exist or was not sufficiently reliable. In particular, the Commissioner did not have access to historic information on the asset base or to the amount of capital spending that was specifically directed at maintenance.

Scottish Water also argued that Scotland has a very different mix of assets from the companies in England and Wales, with more small assets, and an overall higher value of assets to maintain per customer. However, the Ofwat capital maintenance econometric models use information largely about the type and scale of the asset base as explanatory variables to determine predicted expenditure. None of the models use asset value as an explanatory variable. Moreover, the models take explicit account of the lengths of water mains and sewers maintained by Scottish Water. Mains and sewers comprise the majority of Scottish Water's asset values.

³⁰ Professor John Cubbin, 'How appropriate are Ofwat's efficiency models for Scotland?', October 2004.

Scottish Water provided the Commissioner with its analysis of capital maintenance requirements based on a comparison of total asset values with England and Wales. The Commissioner concluded that the values assigned by Scottish Water were not yet sufficiently reliable or consistent with England and Wales to support such analysis. He stated that it was highly unlikely that the inclusion of robust asset values from Scottish Water as possible explanatory variables would lead to the adoption of econometric models that included asset value. In any case, the requirements for maintenance investment would depend on the type of asset, rather than its total value, a factor that the models take into account.

The Commissioner expressed a view that the Ofwat models are robust and fit for his purpose. He considered that the fact that the Ofwat models had been successfully applied to companies as different as Severn Trent Water³¹ and South West Water³² and to both large³³ and small water only companies³⁴ confirmed that the models could reasonably be applied in Scotland.

How the Commissioner assessed capital maintenance investment requirements

In assessing Scottish Water's capital maintenance requirements in 2006-10 the Commissioner took account of the various elements of the four-stage process that Ofwat used in its 2004 price review³⁵:

- **Stage A** Maintaining serviceability to customers to date.

The Commissioner made an assessment of the level of expenditure required to maintain current levels of service to customers and the environment as required by the Ministerial Guidance.

In the approach used by Ofwat, this stage takes into account evidence of historic levels of capital maintenance expenditure, and current serviceability and asset performance information. In his assessment of Scottish Water's proposals, the Commissioner was not able to rely on information on historic expenditure, serviceability measures or asset performance. This was because the information available was not adequately robust to use in the manner that Ofwat's approach demands. The Commissioner used an alternative approach based on the capital maintenance econometric models developed by Ofwat. He used these models to derive the future expenditure he considered to be appropriate at Stage A.

- **Stage B** Is the future period different?

This stage examines the forward-looking element of capital maintenance expenditure. In essence, this step considers how much more (or less) capital maintenance expenditure (compared with the Stage A assumptions) should be required in the future due to changes (in, for instance, the rate of deterioration of assets, or changes in other risks to service failure) that have occurred, are occurring or are likely to occur. In the December 2004 determination, Ofwat used an assessment based on the principles set out in the UKWIR common framework. The Commissioner assessed Scottish Water's proposals in a similar manner.

- **Stage C** Scope for improvements in efficiency.

Ofwat derives efficiency targets in Stage C that generally reduce the expenditure assumptions for price limits. The Commissioner used an alternative methodology to derive the amount of expenditure at Stage A and also used a different approach at Stage C. However, he did use Ofwat's cost base methodology to underpin his assumptions. He assessed by how much Scottish Water could improve its efficiency in capital maintenance over the four-year period.

³¹ Severn Trent Water covers the West and East Midlands and a rural part of Wales.

³² South West Water covers Devon and Cornwall.

³³ Thames Water serves a population of some 12 million.

³⁴ For example, Bournemouth (and West Hampshire) Water which covers just the water service for the Bournemouth area.

³⁵ Ofwat's approach is described in the publications 'Maintaining water and sewerage systems in England and Wales: Our proposed approach for the 2004 periodic review' (May 2002) and 'Setting the price limits for 2005-10: Framework and approach – a consultation paper' (October 2002).

- **Stage D** Impact of the improvement programme.

This stage takes into account the overlaps between the improvement programme and the base capital maintenance programme.

The approach of the Water Industry Commissioner is discussed in greater detail below.

Stage A assesses the level of expenditure required to maintain serviceability given the current level of expenditure and current asset performance.

Capital maintenance expenditure is influenced, in part, by the operating performance of the assets. Total annual expenditure can therefore change quite significantly from one year to the next. It would be desirable to consider expenditure over a number of years in order to smooth out any such variances when considering the influence of expenditure on serviceability trends. This approach is well established in England and Wales and Ofwat was able to average ten years of reliable historic actual expenditure information and compare this with a minimum of five years of robust serviceability information in reaching its Stage A conclusions at the 2004 price review.

There is no equivalent record of actual capital maintenance expenditure and serviceability information in Scotland. The Commissioner therefore had to use a different approach to that used by Ofwat to complete his Stage A assessment.

His approach involved two steps.

- **Step 1** Assess Scottish Water's current capital maintenance expenditure requirement.

To estimate Scottish Water's requirement for capital maintenance, the Commissioner used econometric models developed and used by Ofwat in its 2004 price review. These econometric models are built on the relationship between historic capital maintenance expenditure over the six years to 2003-04 and the asset and customer bases in England and Wales. The Commissioner used Scottish Water's asset and

customer base information as inputs to the Ofwat models in order to derive a predicted level of expenditure. The predicted expenditure given by this step is the level of expenditure that a company with the same asset and customer attributes as Scottish Water should need to maintain stable serviceability, this being the general current serviceability status in England and Wales³⁶.

In effect, the Commissioner assumed that this predicted expenditure, subject to the adjustments set out below, was a reasonable assessment of the amount Scottish Water needed to keep its own levels of serviceability stable. The Commissioner recognised that the level of service and serviceability for Scottish Water may well be different to the average status for the industry in England and Wales. His Stage A assessment for Scottish Water was not designed to reduce these differences. This was consistent with the Ministerial Guidance for the objectives of capital maintenance investment.

- **Step 2** Adjust for Scotland.

This second step takes account of the commissioner's view of any special factors that affect Scottish Water. He adjusted the expenditure predicted at Step 1 for these differences.

Step 1 Assess the current expenditure requirement

The Commissioner took the following steps in using the Ofwat capital maintenance econometric models:

1. Identify the explanatory factors.

The information that Ofwat has collected from companies to provide the potential explanatory factors is all taken from the same base year. The models Ofwat uses therefore have explanatory factors from that year. The Commissioner would have used 1997-98 Scottish explanatory factors as inputs to the Ofwat models, but this information was not available for Scotland. Scottish Water did provide some information for 2003-04.

³⁶ See Ofwat's September 2004 Financial Performance and Expenditure Report.

The Commissioner identified the mean change in each factor in England and Wales between 1997-98 and 2003-04, and applied that to Scottish Water's 2003-04 explanatory factors. He also removed Scottish Water's PPP assets at this stage.

He used this method to estimate the equivalent 1997-98 asset and customer explanatory factors for Scottish Water for each of the Ofwat models.

2. Apply the calculated 1997-98 Scottish explanatory factors to the Ofwat models to determine the estimated level of capital maintenance expenditure for Scotland.

The Commissioner used the derived 1997-98 Scottish explanatory factors in each of the nine models to determine the appropriate level of capital maintenance expenditure for Scotland.

Step 2 Adjust for Scotland

The result of step 1 is a predicted level of capital maintenance expenditure for Scottish Water. This expenditure was at an 'average' level of English and Welsh absolute efficiency and would allow Scottish Water to maintain stable serviceability if it could match the performance of the companies south of the border. The second step of the analysis was to recognise and, if required, adjust for material differences in capital maintenance efficiency and serviceability between Scotland and England and Wales.

The Commissioner used Ofwat's cost base approach to assess Scottish Water's efficiency in capital maintenance relative to the companies in England and Wales. This analysis demonstrated that, in 2003-04, Scottish Water was less efficient relative to the companies south of the border.

The Stage A assessment in Step 1 predicted a capital maintenance expenditure requirement for Scottish Water at the average level of capital maintenance efficiency in England and Wales. The Commissioner added the efficiency gap identified by the cost base assessment to the modelled expenditure. The total was the pre-

efficiency level of capital maintenance expenditure that Scottish Water should require to maintain serviceability. This was prior to the application of an efficiency reduction.

Stage B is forward looking and considers how much more (or less) capital maintenance expenditure (compared with the stage A assumptions) should be required in the future due to changes (in, for instance, the rate of deterioration of the assets, or changes in other risks to service failure) that have occurred, are occurring or are likely to occur.

The Commissioner considered the forward look in three ways:

- A review of Scottish Water's proposals informed by the principles of the Capital Maintenance Planning Common Framework

In recent years, the UK water industry has been working to develop a common framework in its approach to capital maintenance planning. This project involved wide consultation within the UK water industry and the active involvement and contribution of the economic and quality regulators. The results are published in *Capital maintenance planning: A common framework*³⁷ (CMPCF). The CMPCF is founded on risk-based principles so that in most cases capital maintenance will be justified on the current and future probability of asset failure and the resultant consequences for customers, the environment and water service providers, including the costs arising.

The principles of the CMPCF have been widely accepted and are being progressively implemented by water service providers. Implementation is a substantial undertaking, requiring rigorous attention to all aspects of capital maintenance planning, and it cannot be expected to achieve perfection in a short period. This is especially so where the company has poor information on assets and few systematic, consistent records of asset and service performance, and preventative and reactive maintenance costs.

The Commissioner sought to measure Scottish Water's progress in applying the principles of the CMPCF.

³⁷ Capital Maintenance Planning: A Common Framework, UKWIR/Tynemarch Associates, May 2002.

The Commissioner assumed (as does Ofwat) that the progressive application of the common framework principles would ensure that the assessment of capital maintenance would become more robust, would result in the companies' ability to target capital maintenance being significantly improved and would enable expenditure to be shifted from 're-active' to 'pro-active' programmes. These assumptions enabled Ofwat to develop an approach for Stage B, and the rationale behind this approach is described in more detail in 'Capital maintenance review: Independent assessment of Ofwat's PR04 process (Initial review, May 2004)'³⁸.

The Commissioner asked Ofwat independently to assess Scottish Water's final business plan submission using its Stage B methodology, particularly the methodology for assessing the companies progress in implementing the principles of the CMPCF and using this to assess the expenditure justifications put forward. The CMPCF assessment involved considering Scottish Water's proposals for each sub-service against 18 weighted criteria, in the broad areas of information quality, forward-looking analysis and approach to outputs.

Ofwat provided us with the results of this assessment. Ofwat's method assesses and scores each of the 18 criteria in each sub-service producing a score for each sub-service. Ofwat allocated the scores for each sub-service into five possible bands, from 'trailing' to 'leading'.

In each of the four sub-services, while Scottish Water had addressed the principles set out in the common framework, it had not made effective progress and the results indicated that Scottish Water was in the lowest band. In the approach taken by Ofwat in the 2004 determination for England and Wales, such scores would not justify increased capital maintenance investment above the amount assessed in Ofwat's Stage A.

In the approach adopted by Ofwat for Stage B, specific items of proposed capital maintenance expenditure were identified and removed from the CMPCF assessment. These 'exceptional' items were assessed separately. The Commissioner used a similar approach.

- A bottom-up review of individual projects in Quality & Standards III

The Reporter also reviewed Scottish Water's application of the common framework approach. On non-infrastructure, the Reporter found that Scottish Water's application of the approach in the first draft business plan contained a number of deficiencies, for example for assessing capital maintenance needs at water treatment works. This caused him to conclude that the resulting programme may have been over-costed in some areas. While some of these issues were addressed for the second draft business plan, the Reporter noted that items of disagreement remained. He also highlighted deficiencies in Scottish Water's information in a number of areas and commented that substantial improvements were needed in the quality of its asset information.

On waste water infrastructure, the Reporter raised concerns about the application of key assumptions and default views and how these might impact on the level of proposed investment. For water infrastructure he noted a number of areas where models may be subject to inaccuracy. He commented that, while the model that was used provided a logical framework to assess Scottish Water's future capital maintenance expenditure, its results should be viewed in relation to historic spend and information from other companies.

- Advice from the quality regulators

The Commissioner discussed capital maintenance with SEPA and the DWQR. Both expressed a view that it was important that capital maintenance was appropriately targeted.

From his analysis of Stage B the Commissioner drew the following conclusions:

- Scottish Water's knowledge of the condition and performance of its assets was poor and it did not allow a sound, risk-based approach to capital maintenance planning to be adopted.

³⁸ An independent review undertaken for Ofwat by Mott MacDonald, published in August 2004.

- Scottish Water was not yet applying the principles of the CMPCF in a sufficiently robust manner to allow it to plan capital maintenance activity and expenditure as efficiently and effectively as it should.

These two points also implied that Scottish Water has significant potential to improve asset performance and levels of serviceability for the level of expenditure that The Commissioner assumed in charge caps.

- Synergies between the capital maintenance and quality programmes and between the capital maintenance programme and operating expenditure were not understood.

The Commissioner therefore allowed Scottish Water additional capital maintenance expenditure to ensure that it made progress in improving its information and its use of the common framework. The Commissioner also concluded that it should retain sufficient flexibility to address the quality regulators' concerns. The Commissioner allowed seven exceptional items.

Exceptional item 1 Contingency to address public health concerns – up to £20 million

The advice the Commissioner received from the quality regulators highlighted a potential concern relating to public health and environmental issues. To address this, he allowed an exceptional item for unplanned capital maintenance expenditure. These funds were ring-fenced and were to be used only in consultation with the DWQR. They were to be subject to a separate reporting requirement to allow appropriate monitoring and reporting on this item.

Exceptional item 2 Contingency to address environmental concerns – up to £20 million

The Commissioner also allowed an exceptional item for unplanned capital maintenance expenditure on the waste water side. These funds were to be used only in consultation with SEPA. They were to be subject to a separate reporting requirement to allow appropriate monitoring and reporting on this item.

Exceptional item 3 To achieve CMPCF 'best practice' – up to £15 million

In completing his analysis for the price review, the Commissioner concluded that Scottish Water was some way behind the companies in England and Wales in its application of the principles of the CMPCF. To address this, he allowed an exceptional item to ensure that Scottish Water improved its information and made progress in its use of the CMPCF over the next four years.

Exceptional item 4 To achieve progress towards economic levels of leakage - up to £40 million

Scottish Water acknowledged in its business plan that its level of leakage is higher than the economic level. However, the Commissioner expressed concern that information about current leakage levels appeared to be unreliable, particularly at a local level. The impact of high leakage on capital and operating costs was also not well understood. Scottish Water was not yet able to assess its economic level of leakage, nor was it able to target efforts to reduce leakage in the most effective manner.

The Commissioner allowed a fourth exceptional item to ensure that Scottish Water identified its economic level of leakage by December 2007 and that it reached the economic level of leakage by 2014. The Commissioner considered that Scottish Water should have to agree the project priorities for this funding with the Quality Regulators³⁹.

Exceptional item 5 Transfer from quality investment programme, to meet iron and manganese drivers - £17.5 million

The Commissioner also transferred some water main refurbishment work required to meet iron and manganese drivers to the capital maintenance budget. He believed that this was consistent with ensuring that a strategic approach to capital maintenance was adopted. (£22 million transferred, less efficiencies)

³⁹ SEPA and DWQR

Exceptional item 6 Metering - up to £12 million

The Commissioner allowed this item to ensure that Scottish Water could meet the likely demand for meters from non-household customers. This was consistent with the Ministers' guidance on the principles of charging

Exceptional item 7 Quality programme – up to £20 million

The Commissioner allowed this item to ensure that Scottish Water carried out appropriate capital maintenance at sites where it planned to upgrade treatment plant. This item was an addition to the normal capital maintenance that Scottish Water would undertake to maintain treatment plant.

Reallocation to operating costs

The Commissioner reallocated £0.7 million per year (£2.8 million over the period 2006-10) to operating costs to reflect Scottish Water's cost allocation practice for its central laboratory. He made a corresponding special factor allowance in operating costs.

The Commissioner expressed a clear view that Scottish Water should not commit the resources made available to reduce leakage until it had agreed its economic level of leakage with the new Water Industry Commission. It should also agree with SEPA the priority areas for leakage reduction consistent with its economic level of leakage.

Predicted capital maintenance costs using Ofwat's models

- The Commissioner set out his estimate of the required level of annual capital maintenance for Scottish Water in Table 16.5. He reported his results for infrastructure and above-ground assets separately for the water and sewerage services.

Table 16.5: The appropriate annual level of capital maintenance required by Scottish Water as calculated by the Ofwat models

	Water service	Sewerage service	Combined total
Infrastructure assets	£29.3m	£24.1m	£53.4m
Above-ground assets	£50.0m	£43.0m	£93.0m
Service total	£79.3m	£67.1m	£146.4m

These results reflect the average level of efficiency in England and Wales. The best performing company incurred capital maintenance costs that were around 8% lower than those predicted by the econometric models.

Overall allowance after adjustments and exceptional items

Table 16.6 sets out the adjustments that the Commissioner made to the results of the Ofwat models, and the exceptional items that he allowed. He set a range for the allowed level of capital maintenance in the draft determination. The maximum level of capital maintenance was calculated to be £780 million.

Table 16.6: Overall capital maintenance investment allowance, after including adjustments and exceptional items

	Water service	Sewerage service	Combined total
Service total from econometric models	£317.0m	£268.5m	£585.5m
Adjustment ⁴⁰ to reflect Scottish Water's achievable procurement efficiency, relative to England and Wales historic average	£30.3m	£22.5m	£52.8m
Adjustment for application of common framework	£0.0m	£0.0m	£0.0m
Adjustment for reallocation of central laboratory costs	£-2.5m	£-0.3m	£-2.8m
Exceptional item 1: public health	£20.0m	–	£20.0m
Exceptional item 2: environment	–	£20.0m	£20.0m
Exceptional item 3: progress towards CMPCF best practice	£7.5m	£7.5m	£15.0m
Exceptional item 4: Leakage	£40.0m	–	£40.0m
Exceptional item 5: Iron and Manganese (DW5) water mains rehabilitation	£17.5m	–	£17.5m
Exceptional item 6: Metering	£12.0m	–	£12.0m
Exceptional item 7: Quality programme	£15.0m	£5.0m	£20.0m
Total allowance	£456.8m	£323.2m	£780.0m

The Commissioner concluded that the maximum level for capital maintenance should be more than adequate to maintain the serviceability of Scottish Water's current asset base. He noted that this level of funding was 33% higher than the average company in England and Wales would have spent in recent years to maintain an equivalent asset base. He further noted that in its 2004 price review, Ofwat assumed that companies would improve on their historic levels of efficiency by around 8% to 9% in 2005 to 2010. The total allowance was therefore around 45% higher than companies were expected to spend to match Ofwat's targets.

Ofwat did, however, allow companies additional capital expenditure to the extent that they could demonstrate a need through their application of CMPCF. For most water and sewerage companies, these increases ranged from around 15% to 25%. Scottish Water's application of CMPCF did not qualify for such an increase, using

Ofwat's criteria. The Commissioner noted that even without such an increase, the level of capital maintenance allowed to Scottish Water was significantly higher (around 15% to 20%) than that which Ofwat would have allowed a company that had achieved a sufficiently robust application of CMPCF principles to justify its proposals for increased expenditure at the 2004 price determination.

The lower end of the Commissioner's range for the allowed level of capital maintenance is £647 million. He noted that even this lower allowed level of capital maintenance was higher than a company south of the border (in receipt of an upward adjustment for its use of the common framework) was likely to have required.

Review of planned investment on drinking water quality

In its second draft business plan, Scottish Water estimated that £1,064 million of investment was required to meet the Ministers' objectives for improvements to drinking water quality during the 2006-10 regulatory control period. This implied investment of £266 million a year, or around £113 each year for every connected customer. The commissioner noted that the total allowed for investment in England and Wales in the period 2005-10 was £425⁴¹ million a year, or around £18 each year per customer.

Scottish Water's second draft business plan indicated that the high levels of investment in drinking water quality were needed to meet increased water quality standards, particularly for trihalomethanes⁴² and *Cryptosporidium*⁴³. The DWQR confirmed to the Commissioner that the drinking water quality outputs delivered by Scottish Water's proposed investment

⁴⁰ This adjustment takes into account Scottish Water's current relative efficiency in capital maintenance from the cost base analysis. It assumes that Scottish Water will close 50% of this relative efficiency gap, phased equally over the three years 2007-08 to 2009-10. It also assumes that Scottish Water will achieve the continuing improvement targets for capital maintenance set by Ofwat in its 2004 price review. The adjustment is positive due to Scottish Water's relative inefficiency compared with average performance in England and Wales.

⁴¹ This figure is from Ofwat's final determination of future water and sewerage charges 2005-10 and has been inflated by 5.46% to represent capital goods inflation between 2002-03 and 2003-04.

⁴² Trihalomethanes are a by-product of disinfection linked to the presence of organic matter in raw water. Compliance with a trihalomethane standard of 100µg/l is required by 2008.

⁴³ The *Cryptosporidium* (Scottish Water) Directions 2003 place new requirements on Scottish Water, particularly relating to the treatment of recycled water used in the treatment process.

programme would meet the requirements set out by Ministers.

Scottish Water's proposed investment, which was set out in Table C of its business plan can be broken down into the sub-categories shown in Table 16.7. This includes a 'Reduction for overlap' line with a negative value of £51 million. Scottish Water indicated that this was associated with an adjustment for the overlap between quality investment and capital maintenance investment at water treatment works.

Table 16.7: Breakdown of Table C drinking water quality investment into sub-category

Sub-categories	Project cost totals 2006-10
Water treatment works	£830.8m
Water mains rehabilitation (DW5 iron and manganese)	£22.2m
Water resources (Water Framework Directive)	£134.7m
Security enhancement at water treatment sites	£76.4m
Customer requested lead pipe removal	£20.7m
Other minor elements	£30.2m
Scottish Water reduction for 'Programme overlap'	£-51.2m
Total 2006-10	£1063.7m

Water treatment works

Table C included investment in improved drinking water quality at 239 of the 371 water treatment works in Scotland⁴⁴. At a total cost of £831 million, this comprised almost 80% of the total investment in improvements in drinking water quality. The Commissioner noted that this cost was around one-third higher than the cost in England and Wales, again to upgrade 239 works (where the average size of the works will be considerably larger). Moreover, the Reporter identified a number of concerns about this area of the investment programme. This area of the programme was an important focus of the Commissioner's investment programme review.

The review process carried out by the Reporter and Faber Maunsell included:

- assessing the extent to which Scottish Water had correctly interpreted the drinking water quality requirements set out by Ministers;

- establishing the methodology by which Scottish Water had determined the investment required at each water treatment works;
- meeting with Scottish Water staff to discuss the assumptions underpinning this methodology;
- carrying out site visits to determine whether Scottish Water's approach had correctly determined the scope of investment required at a representative sample of works.

The Reporter carried out site visits at a random sample of eight water treatment works. Faber Maunsell selected a further 36 water treatment works for site visits. They visited a representative range of works by size and by level of proposed investment. They also carried out desk top analysis of a further five sites.

The Commissioner considered that the conclusions of the Reporter and Faber Maunsell provided solid evidence for his assessment of Scottish Water's proposals in this area.

The Commissioner's assessment of the required investment in water treatment works

The Commissioner's review indicated that there was considerable evidence that the investment required to meet the ministerial objectives had been scoped incorrectly. In particular, the use of generic solutions to establish investment needs at the smaller water treatment works appeared to have led to a significant overestimate of the scope of the work required. Lack of strategic solutions also appeared to have resulted in increased costs.

In assessing Scottish Water's drinking water quality proposals, the Reporter noted the following:

- The overlap of the water quality programme with work being carried out in Quality and Standards II, and in the capital maintenance programme in Quality and Standards III, had not been fully addressed.

⁴⁴ Scottish Water's second draft business plan includes proposals to reduce the number of operational water treatment works to 301 by 2009-10.

- Generic solutions used for water treatment works did not take full account of site conditions.
- There appeared to be cases where significant engineering solutions were proposed at sites with relatively few water quality failures.
- For the smaller water treatment works, the form of the cost curve used had resulted in some marginal over-costing. The larger works were marginally under-costed, but the overall cost of the programme was inflated by around 2.7% as a result.

Following his assessment, the Reporter concluded that the issues identified in relation to project scoping at water treatment works resulted in Scottish Water's cost estimates being around 15% too high. This was based on the limited sample of eight sites, which were reviewed in detail.

The analysis carried out by Faber Maunsell concluded that there were significant issues concerning Scottish Water's methodology for assessing the scope of work required at water treatment works. At each of the sample water treatment works, Faber Maunsell assessed three key parameters:

- Need – whether the project met the requirements of the Ministerial Guidance.
- Strategy – to what extent the opportunity for strategic solutions had been assessed.
- Scope – to what extent the work proposed at the site was over-scoped.

Each of these parameters was scored for the sample sites. These scores were then translated, using a standard matrix, into an assessment of the extent of over-scoping in the representative sample of projects. These findings were then applied to the overall programme.

Faber Maunsell found evidence of significant over-scoping in each of the areas assessed. For example, when assessing 'need' they discovered sites in the representative sample where there was no clear requirement to carry out the proposed works. Examples included sites where Scottish Water proposed to fit a new 'membrane' treatment process where one already existed at the site.

They also found a number of sites where strategic solutions, such as rationalising the number of water treatment works, had not been taken into account.

Faber Maunsell also found that the use of generic solutions in the costing process had led to major over-scoping of requirements. Examples included the provision of new lamella separators at works where there were already existing alternative processes which were either adequate to meet the requirements or could be augmented at minimum cost. Other examples included costing for the installation of contact tanks where Scottish Water had costed new tanks of the total required volume rather than adding additional volume to existing tanks.

From their analysis, Faber Maunsell concluded that the degree of over-scoping in Scottish Water's proposals for water treatment works justified a pre-efficiency reduction in costs of between 45% and 55%.

The Commissioner reviewed the Reporter's and Faber Maunsell's findings in detail. Following this review he concluded that there was indeed a significant opportunity to reduce the scope of investment at water treatment works. His assessment was that this reduction lay within the range of 30% to 50% of Scottish Water's estimate. This reduced the total cost of the quality investment at water treatment works from £831 million to a highest estimated cost of £582 million and the Commissioner's lowest realistic cost of £415 million. The Commissioner also reduced Scottish Water's assessment of programme overlap in the same range, ie a reduction of 30% to 50%.

The Commissioner reassigned the water mains rehabilitation investment into the capital maintenance expenditure requirements. This reduced the investment in the drinking water quality category by £22 million and increased the investment that we have allowed in capital maintenance by £17.5 million (£22 million less the efficiency target).

Water resources

The Reporter and the Commissioner's engineering consultants assessed Scottish Water's proposed investment of £135 million on water resources. This was primarily associated with the Water Framework Directive⁴⁵. They both concluded that costs in this area are very uncertain.

The Reporter commented that Scottish Water had not yet identified and quantified new abstractions and that Scottish Water had therefore made significant assumptions in developing its proposals. The Reporter also noted that Scottish Water did not appear to have taken full account of the benefits available from leakage reduction.

The engineering consultants commented that further investigations (including the development of a water resources plan) were required to reduce uncertainties and that reducing leakage should be the preferred first choice for replacing lost supplies. They recommended that Scottish Water should establish economic levels of leakage in the water resource zones that are affected by the Water Framework Directive.

The Commissioner concluded that there is considerable uncertainty about costs in this area and there was a danger that customers' money would not be spent wisely. The Commissioner therefore reduced investment in this area to reflect the investment that he had made available to Scottish Water to move towards the economic level of leakage. The Commissioner noted that companies in England and Wales were not allowed such significant investment to help them reach their economic levels of leakage.

Based on the Reporter's and Faber Maunsell's conclusions, the Commissioner reduced the scope of investment in water resources by 30%. It was important to take account of the scope for leakage reduction in assessing the required scope for investment in water resources. This gave a highest estimated investment in this area of £94.3 million. The Commissioner's lowest realistic pre-efficiency cost estimate was £68 million.

Security enhancement

The Reporter reviewed Scottish Water's proposed investment of £76 million for security enhancement at water treatment works and other assets. He concluded that Scottish Water's estimates of the required scope of work appeared to be conservative in a number of areas. He also suggested that the unit costs used in its assessment appeared to be high.

The Commissioner concluded that a reduction of 20% in Scottish Water's assessment of the costs for security enhancement was appropriate. This reduced the assessed level of Scottish Water's investment requirements in this area from £76 million to £61 million.

The Commissioner did not make any other adjustments to the scope of Scottish Water's proposals for drinking water quality investment.

The outcome of the Commissioner's review of the scope of the work required to meet the Ministers' objectives for drinking water quality is shown in Table 16.8.

⁴⁵ The Water Framework Directive element of the water resources expenditure amounts to £133.8 million. The remaining £0.9 million relates to flood studies to comply with the Reservoirs Act.

Table 16.8: Outcome of the Commissioner's assessment of drinking water quality investment requirements (pre-efficiency)

Sub-categories	Original Table C project cost total 2006-10	Highest estimated cost	Lowest realistic cost
Water treatment works	£830.8m	£581.6m	£415.4m
Water mains rehabilitation (DW5 iron and manganese)	£22.2m	£0.0m	£0.0m
Water resources (Water Framework Directive)	£134.7m	£94.3m	£67.8m
Security enhancement at water treatment sites	£76.4m	£61.1m	£61.1m
Customer requested lead pipe removal	£20.7m	£20.7m	£20.7m
Other minor elements	£30.2m	£30.2m	£30.2m
Scottish Water reduction for 'Programme overlap'	-£51.2m	-£35.9m	-£25.6m
Total 2006-10	£1063.7m	£752.0m	£569.6m

Review of planned investment in environmental objectives

Scottish Water's second draft business plan proposed investment of £845.2 million to meet the environmental objectives set out in the Ministers' Guidance. The breakdown of this investment by sub-category is shown in Table 16.9.

Table 16.9: Breakdown of Table C environmental quality investment into sub-category

Sub-categories	Project cost totals 2006-10
Unsatisfactory intermittent discharges	£680.6m
Sewage treatment work	£127.8m
Septic tank upgrade	£12.0m
Sludge treatment centre	£8.3m
IPPC schemes	£9.4m
Landfill Directive	£3.5m
Other minor programme elements	£3.6m
Total 2006-10	£845.2m

Over three-quarters of this investment related to 280⁴⁶ schemes to address UIDs. The Commissioner noted that in Ofwat's 2004 final determination for the companies in England and Wales, the total investment in 'AMP4' UIDs amounted to £816 million⁴⁷ to deliver 1,932 schemes.

⁴⁶ This number includes 275 unsatisfactory combined sewer overflow or emergency overflow projects and five unsatisfactory surface water outfalls. It excludes 14 dual manhole projects.

⁴⁷ In 2002-03 prices.

⁴⁸ In 2003-04 prices, assuming capital inflation of 5.46% from 2002-03 to 2003-04.

The average cost of a UID scheme for Scottish Water's proposals was approximately £2.5 million. This was nearly six times the average proposed scheme cost of £0.45 million⁴⁸ in England and Wales.

The Commissioner's review of the environmental quality investment in Table C indicated that the scope of the investment included in the programme had significantly inflated the costs of meeting Ministers' objectives. This involved:

- duplicate projects appearing in the programme;
- inclusion of investment at PPP works; and
- major over-scoping of the requirements of the UID programme.

Removal of duplicate project entries

The Reporter identified a number of project lines in Table C of the second draft business plan that related to duplicate entries in the programme. The projects shown in Table 16.10 have been removed from the 2006-10 programme.

Table 16.10: Projects removed from Table C programme

Project autocode	Project title	Project cost totals 2006-10 (£m)
31187	UID – Duke Street Glasgow	£0.5m
31224	UID – Cairndhu	£1.7m
31258	UID – Cumberland Avenue	£0.5m
31301	UID – Helensburgh	£1.6m
31302	UID – Helensburgh	£0.5m
31304	UID – Sinclair Street	£0.5m
31308	UID – Gallowgate	£0.6m
31337	UID – Helensburgh No 5	£0.6m
31338	UID – Helensburgh No 6	£0.6m
31387	UID – Ladywell School	£0.5m
31393	UID – Barassie	£5.4m
31410	UID – Meadowhead	£15.9m
31457	UID – Helensburgh outfall No 4	£0.7m
31534	UID – Skellyton	£0.5m
31535	UID – Skellyton	£8.0m
31536	UID – Skellyton	£0.5m
31566	UID – Helensburgh	£0.8m
31570	UID – The Pavilion	£10.4m
	Total 2006-10	£49.8m

Removal of PPP schemes

Scottish Water also included capital investment at PPP waste water treatment schemes in its investment programme. The Commissioner sought legal advice on the contractual arrangements for these schemes. This advice indicated that, while contractual arrangements varied between sites, there was likely to be scope to investigate whether or not Scottish Water was responsible for meeting the costs of the required improvements at these sites. It was also likely that, for both legal and practical reasons, it would not be possible for Scottish Water to own assets at PPP sites.

The Commissioner therefore concluded that the requirements for additional outputs at PPP sites would either be funded by the PPP contractors through existing contractual arrangements or through extensions of the existing contracts. The Commissioner therefore removed this funding from the baseline investment programme and allowed Scottish Water additional PPP operating costs. The PPP projects that have been removed and their associated costs are shown in Table 16.11.

Table 16.11: PPP projects removed from the investment programme⁴⁹

Category/autocode	Project title	Table C 2006-10 project cost
Waste water treatment		
30515	Meadowhead W.W.T. Service	£15.1m
30905	Stevenston WWT Service (PPP STW) Upgrade	£12.9m
UIDs		
31411	Meadowhead Treatment Works Irvine	£21.2m
31551	Stevenston WWTP PPP F.F.T CSO	£8.6m
Sludge treatment		
30516	Meadowhead/Stevenston/Inverclyde – STC	£8.3m
	Total	£66.0m

In assessing the appropriate level of operating costs to allow Scottish Water, the Commissioner made what he considered a generous provision of just under £50 million of capital expenditure⁵⁰ and assumed operating costs of 2% of the capital cost. He used the Ofwat allowed rate of return for the private sector water industry south of the border.

⁴⁹ Project 31410 (Meadowhead UID) also comprises investment at a PPP works that has already been removed as duplication.

⁵⁰ In setting the £50 million allowance for capital expenditure, we have taken account of both the scope for efficiency (see later in this chapter) and a small allowance to reflect the likely over-scoping of the required investment.

Scottish Water's proposed environmental quality programme, after removal of duplications and PPP schemes, is shown in Table 16.12.

Table 16.12: Environmental quality investment after removal of duplications and PPP schemes

Sub-categories	Project cost totals 2006-10
Unsatisfactory intermittent discharges	£601.0m
Sewage treatment work	£99.9m
Septic tank upgrade	£12.0m
Sludge treatment centre	£0.0m
IPPC schemes	£9.4m
Landfill Directive	£3.5m
Other minor programme elements	£3.6m
Total 2006-10	£729.3m

UID programme

The Reporter's review of Scottish Water's proposed investment in UIDs indicated a number of significant concerns relating to the scoping and costing of the programme. These included:

- the use of a generic approach to develop solutions, with no allowance for the possible development of integrated catchment solutions;
- insufficient modelling work being carried out accurately to size the required solution – this was particularly the case for the three major catchments that impact on the programme for Quality & Standards IIIa;
- a particular concern regarding the algorithm that was used to generate storage volumes for CSOs impacting on bathing and shellfish waters;
- high unit costs for schemes;
- concerns about the assessment of interconnecting pipework costs; and
- concerns about the percentage of on-costs applied to the UID programme.

The Commissioner also analysed the cost of remedying UIDs south of the border and concluded that the proposed investment programme in Scotland seemed unduly large. The views of the Reporter and this analysis led the Commissioner to ask the independent engineering consultants to carry out a detailed review of the proposals. They undertook a comprehensive study of a representative sample of 40 of the UID schemes. They concluded that there was evidence of very significant over-scoping of the UID requirements. In particular, they found that:

- the use of a generic approach to costing was resulting in significant over-scoping of requirements;
- the assumptions underpinning the costing methodology resulted in significant over-scoping;
- inconsistent base information was used in the calculations;
- the formula for costing schemes with a bathing water driver was statistically flawed – this had led to oversized storage and compensation volumes; and
- there was no strategic approach to determining the investment requirements.

Examples of over-scoping of requirements included the following:

- The proposed solution for one UID project with an estimated cost of over £10 million was to fit a 1,120m³ storm tank and screen. Faber Maunsell concluded that the scheme as presented did not require a storage solution and that this would reduce the cost substantially.
- An allowance at every site for a 50 metre x 4.5 metre access road and hard standing of 25m². In many

cases the sites are on or adjacent to existing sites and roads.

- An assessed cost of £2.4 million for a storage volume of 70m³, equivalent to a standard double garage.
- A storage volume equivalent to 25 Olympic swimming pools planned for Meadowhead waste water treatment works⁵¹.

Examples of issues concerning base information included a project⁵² with a reported 'pass forward flow'⁵³ of 0.001litres/second. This flow would take five minutes to fill a soft drink can. Such a low flow would seem to be unlikely and was probably either an error in information or of measurement.

Faber Maunsell identified concerns about Scottish Water's technical information at an early stage of their assessment. The Commissioner sought to confirm the accuracy of the information with Scottish Water. In its initial response⁵⁴, Scottish Water stated that:

"Through each stage in the development of the UID programme, Scottish Water has subjected the data to checks. This has included checks back to drainage area studies where appropriate. In several instances apparent anomalies from high-level checks have been investigated further and retained in the data set. Whilst it is never possible to state that there are no errors, we believe that we have undertaken appropriate checks."

The Commissioner responded with a detailed enquiry pointing out the information about which he had concerns. Scottish Water later responded to confirm that there were, indeed, a number of issues with their information submission. This would appear to confirm the view that the UID programme assessment had suffered from poor quality information.

As an example of the lack of a strategic approach to determining the investment requirements in this area,

⁵¹ Based on two Meadowhead schemes, each with a proposed volume of 39612m³.

⁵² Project 31187 UID Great Eastern Hotel, Duke Street, Glasgow

⁵³ This is the flow which passes downstream in the continuation pipe. Excess flows will be spilled over the weir and discharged to the receiving water body. The pass-forward flow at the point of first spill is referred to as the 'setting'.

⁵⁴ Email from Scottish Water to this Office, 20 May 2005.

Faber Maunsell commented on a scheme in Penicuik that:

“There is a desperate need for an overall strategy in respect to storage and screening requirements in view of the fact that there are many combined sewer overflows within the general locality. No such strategy has been demonstrated.”

The lack of a strategic approach was evident throughout the programme and particularly for the three large catchments at Irvine (Meadowhead), Stevenston and Portobello, which make up around 65% of the Quality & Standards IIIa UID programme.

In assessing the representative sample of projects, Faber Maunsell used an identical scoring system to that described above for water treatment works. They assessed the sites on the basis of the need for the project, the extent of strategic assessment of options and the extent of over-scoping of requirements. Based on their representative sample, Faber Maunsell concluded that the extent of over-scoping in the programme was sufficient to justify a reduction in the estimated costs of 58%.

The Commissioner therefore concluded that the investment required on UIDs to meet the Ministers' environmental objectives was significantly lower than Scottish Water's assessment of £601million⁵⁵. Based on their assessment of a representative sample of Scottish Water's UID programme, the independent engineering consultants estimated the cost of Scottish Water's programme, properly scoped, to be around £252 million⁵⁶. This represented the highest estimated pre-efficiency cost for the UID programme.

Scottish Water is also fixing many UIDs during Quality and Standards II. A review of the Quality and Standards II baseline investment programme would suggest that a current unit cost of £0.42 million would be appropriate. This estimate includes an adjustment of the pre-efficiency amount that was made available to the three authorities for both the scope for efficiency and the

impact of capital expenditure inflation since 2000-01. In England and Wales, the average pre-efficiency cost of 'AMP4' UID schemes in company submissions was £0.45⁵⁷ million. This would give a total programme cost of £126 million⁵⁸. The Commissioner considered that this represented the lowest realistic pre-efficiency cost of the UID programme.

Both the Reporter and the independent engineering consultants identified that effective delivery of the UID programme would require detailed modelling to demonstrate the interaction of discharges from the waste water systems and the receiving waters. This was particularly the case for the three major catchments that dominate the programme. The Reporter proposed that addressing the problems in these catchments should be postponed until the next regulatory control period.

After consultation with SEPA, the Commissioner allowed a further provision of £6 million for Scottish Water to carry out detailed modelling and study work to identify the optimum solutions for these catchments. The Commissioner suggested that Scottish Water be required to demonstrate that this work had been completed to the satisfaction of SEPA and the Reporter, before investment in these catchments proceeded. The Commissioner also considered that it was appropriate to ring-fence investment of £83 million to £167 million, representing the proportion of UIDs to be fixed in the three catchments of Meadowhead, Stevenston and Portobello until the modelling had been completed.

In the event that the strategic studies indicated that extensive re-sewering is required in the catchment, this would be addressed either in an interim determination or in the next Strategic Review of Charges. Accordingly, the Commissioner recognised that the investment allowance for the catchments of Meadowhead, Stevenston and Portobello was a notified item for this review.

⁵⁵ After removal of duplications and PPP works.

⁵⁶ Inflated to 2003-04 prices.

⁵⁷ After removal of duplications and PPP works and assuming 280 UID schemes.

⁵⁸ Based on the assessed reduction of 58% of the total UID programme cost, after the removal of duplications and PPP works.

Outcome of the Commissioner's assessment for environmental enhancement investment

The Commissioner's conclusion on the appropriate scope of investment to meet the Ministers' objectives for improvements in environmental compliance is shown in Table 16.13.

The Commissioner accepted the Reporter's overall views on other aspects of the environmental quality programme and decided that there was no need for a scoping adjustment to the proposed investment at sewage treatment works, septic tanks, surface water outfalls, IPPC schemes, landfill directive investment or other minor elements of the programme.

Table 16.13: Outcome of the Commissioner's assessment of environmental quality investment requirements (pre-efficiency)

Sub-categories	Adjusted Table C project cost totals 2006-10	Highest estimated cost	Lowest realistic cost
Unsatisfactory intermittent discharges	£601.0m	£252.4m	£126.0m
Study work		£6.0m	£6.0m
UID sub-total		£258.4	£132.0m
Sewage treatment work upgrade	£99.9m	£99.9m	£99.9m
Septic tank upgrade	£12.0m	£12.0m	£12.0m
IPPC schemes	£9.4m	£9.4m	£9.4m
Landfill Directive	£3.5m	£3.5m	£3.5m
Other minor programme elements	£3.6m	£3.6m	£3.6m
Total 2006-10	£729.3m	£386.8m	£260.4m

Review of planned investment on development constraints and first time connection

Scottish Water's second draft business plan proposed investment of £221 million to meet demand for new network capacity from new housing and businesses. It also proposed £70 million for the first time connection of existing properties to the public water and waste water networks. This is set out in Table 16.14.

Table 16.14: Breakdown of Table C development constraint and first time connection investment

Sub-categories	Project cost totals 2006-10
Development constraints 'Part 3'	£66.9m
Development constraints 'Part 4'	£144.0m
Development constraints water resources	£10.4m
Total development constraints⁵⁹	£221.4m
First time provision 'Part 3'	£40.2m
First time provision 'Part 4'	£29.9m
Total first time provision⁶⁰	£70.0m

Development constraints

Ministers set an objective that sufficient strategic capacity should be made available to allow 60,000 new homes and 2,025 hectares of new commercial land to be connected to the public water and waste water networks.

Costs in this area have been split between 'Part 3' and 'Part 4' assets for both water and waste water. There was also an element for additional water resources to meet perceived increased demand. 'Part 3' assets relate to local network reinforcement costs associated with new development, such as increased capacity on water mains, sewers, service reservoirs or pumping stations. 'Part 4' assets include treatment works, reservoirs or outfalls.

The Commissioner noted that the Scottish Executive was developing regulations in line with the requirements set out in the Water Environment and Water Services Act 2003. These regulations were expected to require Scottish Water to be responsible for funding all 'Part 4' costs and providing a 'reasonable cost' contribution to 'Part 3' costs. Although the exact level of the 'reasonable cost' contribution had still to be determined, it seemed likely to be based on an assessment of the future income generated by the new connection and to be broadly in line with the situation in England and Wales. The Reporter and the independent engineering consultants conducted a detailed review of the methodology employed by Scottish Water to estimate the investment required to release development

⁵⁹ Totals do not add due to rounding.

⁶⁰ Totals do not add due to rounding.

constraints. Particular comments included the following:

'Part 4' expenditure

- Current levels of leakage have been assumed. No allowance has been made for leakage reduction to meet increasing demand.
- Scottish Water's estimate of water demand from industrial/commercial properties appeared to be high and was inconsistent with comments in its business plans about the revenue base.
- Particularly for its smaller waste water treatment works, Scottish Water did not have good quality flow and load information on which to determine whether works were overloaded or not.
- Scottish Water included PPP works in its assessment of upgrade costs.
- Due to the methodology employed, the levels of expenditure requirement generated by relatively small developments was high.
- Scottish Water's projections of capacity restrictions were being made against a background of a forecast decline in population in Scotland.

'Part 3' expenditure

- Scottish Water had calculated the 'reasonable contribution' to Part 3 household costs as a 12-year net present value calculation based on the average charge for customers. A real discount rate of 0.72% was used, based on the Commissioner's proposed rate of return on the regulatory capital value.
- For industrial/commercial properties a contribution of £23,600 per hectare had been used. The basis for this contribution was uncertain. Scottish Water had assumed that the full contribution would be payable whenever the site was constrained.

- A constraint had been defined as a service reservoir having less than 12 hours storage time or a CSO that had either been deemed as unsatisfactory or had been subject to a sewer flooding incident.
- No account has been taken of the CSOs being upgraded or improved under other categories of the investment programme or of the internal flooding issues being addressed in Quality and Standards II and III.

Resources

- Scottish Water had not related actual identified development constraint areas to constrained water resource zones. It was not possible, therefore, to identify whether or not water resource issues would arise in practice. Scottish Water had assumed that 75% of the new development will be in water resource areas with potential deficiencies, whereas only 50% of water resource areas were in deficit against Scottish Water's desired standard.
- Scottish Water had assumed that 50% of domestic developments and 90% of industrial/commercial developments would provide new demand within the zone. These figures appeared to be very high, particularly given the current trends in overall population and economic growth. It was not clear whether these figures were consistent with the revenue base projections that were contained in Scottish Water's draft business plans.

The Reporter concluded that Scottish Water's estimates of the nature of (and the cost of resolving) development constraints were very uncertain.

The Commissioner's assessment of funding requirements for development constraints

Scottish Water's proposed investment in this area

appeared to be high. In particular the Commissioner noted the following:

- Part 4 costs included investment relating to capacity at PPP works. The Commissioner considered that if such investment was required, it should be met either under the existing contract or through a contractual amendment⁶¹.
- Scottish Water's modelling of the actual requirements had been limited. This was likely to result in over-scoping of requirements.
- Scottish Water's assessment appeared not to have taken account of synergies with other parts of the investment programme, such as leakage control, water treatment works upgrades and the UID programme.
- The assessment of costs appeared to use 'worst case' scenarios in areas such as the likely level of reasonable cost contributions and the extent of water resource upgrades that were required.
- The Scottish Executive had also commented that it was expected that a recently agreed Memorandum of Understanding between SEPA and Scottish Water should reduce the constraints caused by a number of waste water treatment works.

Scottish Water assumed a very low discount rate (0.72%) in its assessment of the value of a new customer. This resulted in the value of the customer being exaggerated and therefore the reasonable cost contribution was overstated. This discount rate was consistent with the post-tax real discount rate that the Commissioner allowed Scottish Water in the draft determination (before his increased allowance for embedded debt). However, it was not clear that this rate should be used in the calculation of the value of a customer. Using a rate of 0.72% gave the connecting customer the benefit of both the public sector cost of capital and the benefit of the tax shield on Scottish Water's borrowing. The Commissioner considered that this significantly overvalued the future value of revenues from new customers.

The Commissioner concluded that the discount rate should be in the range 2.1%, which is the real pre-tax cost of capital, and 4.25% which is based on the methodology applied in England and Wales (6.75% cost of capital minus 2.5% for inflation). This reduced the contributions payable under Part 3 by between 8.3% and 19.3%.

In its methodology for assessing Part 3 costs, Scottish Water used the approach that is currently adopted south of the border to assess the likely level of the contribution. However, it did not include the infrastructure charge that is normally paid for connecting to the water and sewerage system south of the border. To be properly consistent with an approach that uses the England and Wales model, the contribution to Part 3 costs should be stated net of the infrastructure charge that would be payable. This net amount is the cost that has to be met by the existing customer base. The Commissioner assumed the average England and Wales charge of £250 for both water and waste water, this equates to a £30 million contribution for 60,000 houses. He did not include an infrastructure charge for commercial property. Such a charge would have further reduced the net contribution that had to be made by existing customers.

The Commissioner did not seek to challenge Scottish Water's assumptions on the extent to which contributions would be required. The regulations relating to connection costs are a notified item in this draft determination.

Based on the comments provided by the Reporter and the independent engineering consultants, the Commissioner considered that the allowance for 'Part 4' costs for both water and waste water, and for water resources, should be reduced by between 15% and 25%. The Commissioner considered that the investment identified by Scottish Water had taken insufficient account of opportunities for leakage reduction and the benefits of both Quality and Standards II investment and that proposed elsewhere under this programme. Moreover, the investment included investment at PPP sites and appeared in many instances to be over-scoped. These changes give a highest estimated cost for

⁶¹ Our understanding is that most PPP contractors would earn more if they treated more effluent

development constraints (pre-efficiency) of £193 million and a lowest realistic cost of £170 million⁶².

First time provision

The Commissioner reviewed the Reporter's and the independent engineering consultant's comments on Scottish Water's proposed investment for first time provision of water and waste water services to existing houses.

The Commissioner noted similar concerns to those expressed for development constraints. In particular, the assessment of the 'Part 3' reasonable cost contribution had been carried out on a similar basis. The Commissioner therefore reduced the investment requirement to compensate for the contribution from the infrastructure charge and a more appropriate discount rate. In the absence of information on the likely number of properties to be involved, he assessed the likely level of infrastructure charge contribution on a pro-rata basis from the development constraint funding proposals⁶³.

The Commissioner also reduced the investment required for 'Part 4' constraints by between 15% and 25%, consistent with his approach for development constraints. He noted, however, that first time provision for water did not appear to form part of the Ministerial Guidance of February 2005.

The highest estimated cost for first time provision then becomes £62 million and the current lowest realistic cost £55 million⁶⁴.

Table 16.15 shows the Commissioner's assessment of the pre-efficiency baseline investment programme for expenditure on development constraints and first time provision.

Table 16.15: Outcome of our assessment of development constraint and first time connections investment requirements (pre-efficiency)

Sub-categories	Original Table C project cost totals 2006-10	Highest estimated cost	Lowest realistic cost	Contribution from connecting customers (infrastructure charge)	Highest estimated cost – contribution from customer base	Lowest realistic cost – contribution from customer base
Development constraints 'Part 3'	£66.9m	£61.4m	£54.0m	£30.0m	£31.4m	£24.0m
Development constraints 'Part 4'	£144.0m	£122.4m	£108.0m		£122.4m	£108.0m
Development constraints water resources	£10.4m	£8.9m	£7.8m		£8.9m	£7.8m
Total development constraints	£221.4m	£192.7m	£169.9m	£30.0m	£162.7m	£139.9m
First time provision 'Part 3'	£40.2m	£36.9m	£32.4m	£10.0m	£26.9m	£22.5m
First time provision 'Part 4'	£29.9m	£25.4m	£22.4m		£25.4m	£22.4m
Total first time provision	£70.0m	£62.2m	£54.8m	£10.0m	£52.3m	£44.9m
Total for growth investment	£291.4m	£254.9m	£224.7m	£40.0m	£214.9m	£184.7m

⁶² Both costs include a £30 million contribution from connecting customers through the infrastructure charge.

⁶³ Scottish Water has proposed a total of £211 million for development constraints and £70 million for first time provision. On a pro rata basis, the £30 million infrastructure charge income for development constraints becomes £10 million for first time provision.

⁶⁴ Both costs include a £10 million contribution from connecting customers through the infrastructure charge.

Review of planned investment on customer service

Scottish Water's second draft business plan proposed £84.1 million of investment to meet Ministers' objectives for improvements to customer service, as shown in Table 16.16.

Table 16.16: Breakdown of Table C customer service investment

Sub-categories	Project cost totals 2006-10
Pressure management	£5.7m
Odour management	£19.1m
Business metering	£0.7m
Sewer flooding	£58.6m
Total 2006-10	£84.1m

The Commissioner's review of costs for pressure management and sewer flooding indicated that they were broadly consistent with pre-efficiency costs in England and Wales. Odour management costs were subject to some uncertainty given that the process for identifying the 35 sites to be addressed under Quality and Standards III is still underway. The Commissioner therefore concluded that he would not make any reductions to the scope of investment in these areas.

Business metering costs have been excluded because the Commissioner separately allowed metering costs and capital costs relating to the separation of retail activities. He added £15 million to cover the capital cost of establishing a separate retail entity and facilitating non-household competition in accordance with the requirements of the Water Services etc. (Scotland) Act 2005.

Table 16.17 summarises the Commissioner's assessment of the customer service investment necessary to meet the Ministers' objectives.

Table 16.17: Outcome of the Commissioner's assessment of customer service investment requirements (pre-efficiency)

Sub-categories	Project cost totals 2006-10	Highest estimated cost	Lowest realistic cost
Pressure management	£5.7m	£5.7m	£5.7m
Odour management	£19.1m	£19.1m	£19.1m
Business metering	£0.7m	£0.0m	£0.0m
Sewer flooding	£58.6m	£58.6m	£58.6m
Introduction of competition	£0.0m	£15.0m	£15.0m
Total 2006-10	£84.1m	£98.4m	£98.4m

Summary of changes to the scope of the investment programme

A summary of the changes to the baseline investment programme resulting from the Commissioner's review process is shown in Table 16.18.

Table 16.18: Summary of the proposed changes to the baseline investment programme

Investment category	Project cost totals 2006-10	Highest estimated cost	Lowest realistic cost
Drinking water quality	£1063.7m	£752.0m	£569.6m
Environmental	£845.2m	£386.8m	£260.4m
Customer service + initial retail investment	£84.1m	£98.4m	£98.4m
Growth*	£291.4m	£214.9m	£184.7m
Total 2006-10	£2,284.4m	£1,452.2m	£1,113.1m

*Contribution from customer base

Efficient delivery of the baseline programme

The Commissioner first established the cost of delivering the required scope of investment in improved quality, network growth and customer service at Scottish Water's current level of efficiency. The next stage in his assessment process was to establish the impact of efficiency improvements on this level of investment. As noted earlier, the Commissioner used Ofwat's cost base approach to determine the scope for efficiency in the enhancement programme.

Ofwat's cost base approach uses capital works standard costs to assess the relative efficiency of companies in procuring and implementing capital projects. The cost

base is a database of costs, termed 'standard costs' for a wide range of standardised projects, or units of work. These standardised projects are typical of investment in the water and sewerage industry. The standard costs represent the work required to complete the investment programme. Ofwat can compare the standard costs submitted by the water and sewerage companies to assess relative procurement efficiency.

The Commissioner had to ensure that the cost estimates in Scottish Water's investment programme were fully consistent with the information contained in Scottish Water's cost base.

The Commissioner asked Faber Maunsell to assist with his analysis of relative capital cost efficiency using the cost base approach. Faber Maunsell reviewed the standard costs submitted by Scottish Water to ensure that they were consistent with Scottish Water's investment programme and Ofwat's benchmark costs. When Faber Maunsell were satisfied with the cost information, the Commissioner assessed the procurement efficiency gap, expressed as a percentage of total investment separated by water and sewerage, infrastructure and non-infrastructure. The cost base factors that resulted from this analysis are shown in column 1 of Table 16.19⁶⁵.

Table 16.19: Capital efficiency factors applied to the quality, growth and customer service investment for the highest estimated cost investment programme

	Cost base efficiency gap	Reduction required to close 75% of gap	Additional reduction required to match 'continuing improvement' ⁶⁶ by water companies	Total reduction required
Water				
Infrastructure	23.5%	17.6%	3.7%	20.7%
Non-infrastructure	25.7%	19.3%	3.7%	22.3%
Weighted average	25.6%	19.2%	3.7%	22.2%
Sewerage				
Infrastructure	17.2%	12.9%	4.4%	16.7%
Non-infrastructure	29.8%	22.4%	4.4%	25.8%
Weighted average	22.4%	16.8%	4.4%	20.5%
Combined				
Infrastructure	17.9%	13.4%	4.3%	17.2%
Non-infrastructure	26.7%	20.0%	3.9%	23.1%
Weighted average	24.2%	18.2%	4.0%	21.4%

⁶⁵ Cost base efficiency gap

⁶⁶ 'Continuing improvement' refers to Ofwat's expectations in price limits of the level of improvement achievable by leading companies. It is equal to half the total scope for improvement by leading companies estimated by Ofwat in its 2004 price review.

The Commissioner phased the efficiency challenge for Scottish Water over three years. Tables 16.20 and 16.21 set out the impact of the phased reductions on the highest estimated cost investment programme.

Table 16.20: Reductions in the allowed level of capital expenditure (%) for the highest estimated cost investment programme

	% reduction required to achieve efficiency target:			
	2006-07 (25% gap closure)	2007-08 (50% gap closure)	2008-09 (75% gap closure)	2009-10 (75% gap closure)
Water	7.2%	14.4%	21.4%	22.0%
Sewerage	6.6%	13.1%	19.5%	20.3%
Weighted average	7.0%	13.8%	20.6%	21.2%

Table 16.21: Reductions in the allowed level of capital expenditure (£m) for the highest estimated cost investment programme

	% reduction required to achieve efficiency target:			
	2006-07 (25% gap closure)	2007-08 (50% gap closure)	2008-09 (75% gap closure)	2009-10 (75% gap closure)
Water	£7.8	£29.1m	£47.5m	£51.5m
Sewerage	£5.4	£20.1m	£32.7m	£35.8m
Weighted average	£13.2m	£49.2m	£80.2m	£87.2m

The cost base factors and their impact on investment depend on the composition of the investment programme. Tables 16.22 to 16.24 repeat the cost base analysis shown in Tables 16.19 to 16.21, this time for the current lowest realistic cost programme.

Table 16.22: Capital Efficiency factors applied to the quality, growth and customer service investment for the lowest realistic cost investment programme

	Cost base efficiency gap	Reduction required to close 75% of gap	Additional reduction required to match 'continuing improvement' by water companies	Total reduction required
Water				
Infrastructure	23.5%	17.6%	3.7%	20.7%
Non-infrastructure	25.3%	19.0%	3.7%	22.0%
Weighted average	25.2%	18.9%	3.7%	21.9%
Sewerage				
Infrastructure	18.2%	13.7%	4.4%	17.4%
Non-infrastructure	29.7%	22.3%	4.4%	25.7%
Weighted average	24.2%	18.2%	4.4%	21.8%
Combined				
Infrastructure	19.1%	14.3%	4.3%	18.0%
Non-infrastructure	26.7%	20.0%	3.9%	23.1%
Weighted average	24.7%	18.6%	4.0%	21.8%

Table 16.23: Reductions in the allowed level of capital expenditure (%) for the lowest realistic cost investment programme

	% reduction required to achieve efficiency target:			
	2006-07 (25% gap closure)	2007-08 (50% gap closure)	2008-09 (75% gap closure)	2009-10 (75% gap closure)
Water	7.1%	14.2%	21.1%	21.7%
Sewerage	7.1%	14.0%	20.9%	21.6%
Weighted average	7.1%	14.1%	21.0%	21.6%

Table 16.24: Reductions in the allowed level of capital expenditure (£m) for the lowest realistic cost investment programme

	reduction required to achieve efficiency target:			
	2006-07 (25% gap closure)	2007-08 (50% gap closure)	2008-09 (75% gap closure)	2009-10 (75% gap closure)
Water	£5.6m	£20.8m	£33.9m	£36.8m
Sewerage	£4.4m	£16.3m	£26.5m	£28.9m
Total	£9.9m	£37.1m	£60.4m	£65.7m

The lowest estimated efficiency gap averaged over the phased programme was 15.4%. The highest realistic efficiency gap calculated over the entire programme was 20.8%.

The results of the engineering consultants' work were reviewed by SMC and by Ofwat. SMC reported that, following Faber Maunsell's review, Scottish Water's cost base coverage and consistency was in line with England and Wales and that the Commissioner had properly carried out all of Ofwat's cost base activities. SMC also commented that the Faber Maunsell audit trails were clear and concise and directed to achieve compliance with Ofwat's guidelines. SMC was satisfied that the level of scrutiny was equivalent to that applied in England and Wales.

The Commissioner applied these cost base factors to his range of pre-efficiency baseline investment programme estimates in Table 16.18. He did not apply these reductions to the 'Part 3' costs for development constraints and first time provision. These 'Part 3' costs are payments of reasonable cost to customers and it would not be appropriate to apply an efficiency reduction to them.

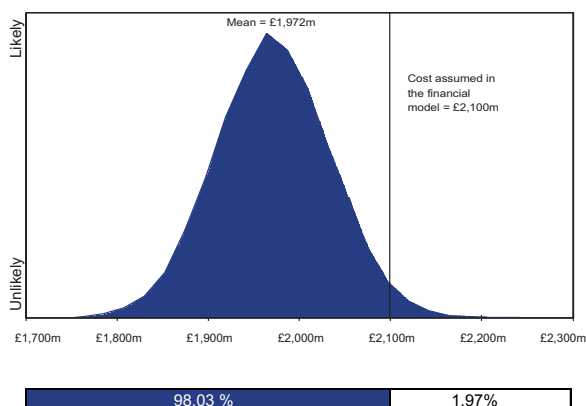
Assessment of the level of investment included in the financial model

The Commissioner commented that Scottish Water's investment plan, as outlined in its draft business plans, was significantly larger than he had expected. In his view the Ministers' objectives were clear and consistent with the results of the Quality and Standards III process. It had therefore been important to examine in detail the capital programme that Scottish Water put forward in order to understand why it was so much larger than the Commissioner had expected.

His initial conclusions were that Scottish Water took a particularly conservative view of what was required, with the result that both the scope and the unit cost of the proposed programme were significantly inflated. However, the Commissioner noted that he was continuing to review the evidence and to work with Ofwat on the costing and scoping of the investment programme.

In setting a level of capital investment for the financial model, the Commissioner took account of the scope for efficiency and the range of investment he believed could be required. He examined each category of capital investment where he had identified a range of possible costs. He assumed that there was only a 5% chance of costs being lower than the minimum values that he identified, and a 5% chance of costs being higher than the maximum values. Where no range was identified, the Commissioner assumed that the cost value was firm. He carried out a risk analysis that combined the ranges that he had estimated. The result of this analysis was a probability distribution for the cost of the entire capital programme. Figure 16.3 shows this.

Figure 16.3: Results of risk analysis on capital investment costs 2006-10



This analysis suggests that, given the ranges the Commissioner described above, there was less than a 2% chance that the required capital programme would exceed his estimate of £2,100 million (2003-04 prices). This included Scottish Water’s full claim for the Quality and Standards II overhang⁶⁷. The Commissioner also took account of the unsubstantiated claim for capital expenditure efficiency made by the former East of Scotland Water Authority in 2001⁶⁸.

Phasing of the investment

In the financial model the Commissioner phased this investment as set out in Table 16.25.

Table 16.25: Phasing of capital investment in the financial model

	2006-07	2007-08	2008-09	2009-10	Total
Capital investment in 2003-04 prices	£484.6m	£516.7m	£534.1m	£564.5m	£2,100.0m
Capital investment in estimated outturn prices	£534.3m	£593.0m	£633.3m	£689.5m	£2,450.1m

The Commissioner stated his view that this phasing was realistic. Most of the water quality objectives had to be met by the end of year 3 of the regulatory control period. In the absence of this deadline, it was likely that the phasing could have been more skewed towards the latter half of the regulatory control period. This skewing towards the latter half of the regulatory control period reflected the need for significant work to define the optimum investment strategy in several areas of the capital programme. The Commissioner sought to compensate for the lack of a skewing towards the latter half of the period by providing targeted funding to carry out study work on the UID programme and address leakage issues.

Summary

Scottish Ministers set Scottish Water clear objectives to maintain the serviceability of their current assets and to improve drinking water quality, environmental performance and customer service over the next regulatory control period. They set both essential objectives (to be delivered irrespective of the implications for customers’ bills) and desirable objectives (to be delivered subject to the scope for efficient delivery and subject to prices remaining stable). Customers will wish to be assured that the significant investment required to deliver these objectives is delivering value for money.

The Commissioner’s detailed review of Scottish Water’s investment proposals for asset maintenance, improved quality, network growth and customer service has

⁶⁷ Adjusted only for inflation in the next regulatory control period. It would not, in our view, be reasonable to ask customers to pay more because of the late delivery of the Quality and Standards II investment programme.
⁶⁸ See background in Chapter 6.

identified significant scope for reduction in Scottish Water's assessed cost. This primarily relates to over-scoping of requirements for investment in water treatment works, unsatisfactory intermittent discharges and tackling development constraints.

The Commissioner also assessed the scope for Scottish Water to improve the efficiency of its capital delivery. The scope for efficiency was obviously dependent on the make-up of the capital programme. However, his analysis showed that the scope for improvement was up to 20.8%. The minimum scope for improvement was 15.4%.

In the draft determination, the Commissioner proposed charge caps that reflected a capital programme of £2,100 million in 2003-04 prices. This included Scottish Water's claim for the overhang from Quality and Standards II and the unsubstantiated efficiency claim of the former East of Scotland Water Authority.

Chapter 17:

New information since the draft determination was published

Introduction

In the draft determination, the Water Industry Commissioner set out in some detail the sources of information that underpinned the level of capital expenditure that he allowed for. In this chapter, we outline new or updated information sources and the results of our further analyses. We have taken account of both this new information and the results of further analyses in our final determination.

We have used these new or updated sources of information to develop the analyses that were carried out for the draft determination. This ensures that our assessment of the funding that we should allow for to meet the ministerial objectives is based on the latest available information. Our aim is to set out clearly how we have reached our conclusions on their level of capital expenditure.

It is important to emphasise that the ministerial objectives can be met not only through capital expenditure, but also through improved operational practice. Improved performance in operating assets will help to reduce the incidence of water quality failures, environmental incidents and poor customer service. In many cases, solutions involving increased operating costs may, on a discounted whole-life cost basis, prove more cost-effective than solutions which principally rely on capital expenditure.

Scottish Water's first and second draft business plan investment proposals

Volume 5 of the draft determination described the capital investment proposals contained in Scottish Water's first and second draft business plans¹. The first draft business plan was submitted on 29 October 2004 and the second draft business plan on 20 April 2005.

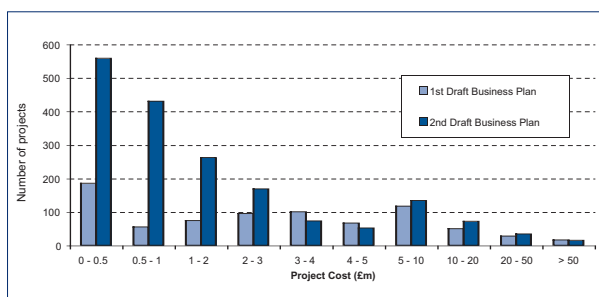
In its first draft business plan, Scottish Water suggested that it should invest some £2.2 billion², not including the overhang³ from Quality and Standards II, during the 2006-10 regulatory control period. In its second draft business plan, Scottish Water stated that it would need

to invest £3.37 billion to meet the Ministers' 'essential' and 'desirable' objectives over the same period. Scottish Water stated that some £2.92 billion would be required to meet just the Ministers' 'essential' objectives. Scottish Water attributed the increase to a number of factors, including the following.

- The addition of new investment objectives by Ministers beyond those proposed in the first draft business plan.
- A change in the timing of investment, with a number of the objectives brought forward to the 2006-10 period from the 2010-14 period.
- Higher projected construction price inflation.

There was also a significant increase between the first and second draft business plans in the number of projects to be delivered. This increase is set out in Figure 17.1.

Figure 17.1: Comparison of number of projects by size in first and second draft business plans



In the second draft business plan there were 1,797 projects for the 2006-14 period, compared with 790 in the first draft business plan. This appeared to relate, in part, to increased disaggregation of the programme but also to the addition of a significant number of new projects.

We were concerned to understand what had led to the substantial increase in Scottish Water's investment proposals in the second draft business plan. We analysed changes between the first and second draft business plans. The change in investment by driver is shown in Table 17.1.

¹ *The Strategic Review of Charges 2006-10: The draft determination, Volume 5: Financing delivery of the investment objectives of the Scottish Ministers, Chapter 5, Quality and Standards III, starting page 52.*

² All in 2003-04 prices.

³ The overhang comprises projects funded in the 2002-06 regulatory control period but not completed. They will have to be completed at the start of the 2006-10 regulatory control period.

Table 17.1: Comparison of investment by driver between the first and second draft business plans

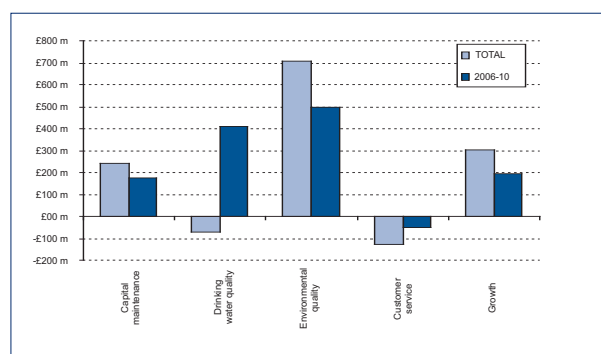
Type	Driver	Description	TOTAL INVESTMENT			2006-10		
			1st DBP £m	2nd DBP £m	Change £m	1st DBP £m	2nd DBP £m	Change £m
CM	CM	Capital Maintenance	1,799.6	2,040.4	240.8	912.4	1,084.8	172.5
	CS1	Pressure	17.0	14.3	-2.7	5.1	5.7	0.6
	CS2	Odour management	141.6	47.9	-93.7	56.6	19.1	-37.6
	CS4	Business Metering	8.1	1.6	-6.4	4.1	0.7	-3.5
	CS6	Emergency planning standards	2.7		-2.7	1.4		-1.4
	CS9	Customer Experience	16.7		-16.7	9.1		-9.1
	CS11	Sewer Flooding	119.0	110.9	-8.1	59.5	58.6	-0.9
		Subtotal customer service drivers	305.1	174.7	-130.3	135.8	84.1	-51.7
	DW1	Lead std	87.6	173.8	86.2	0.0	20.9	20.9
	DW2	Trihalomethane std	34.5	29.2	-5.3	33.5	28.8	-4.7
	DW3	All other std in DW directive	237.2	299.7	62.5	128.1	298.4	170.3
	DW4	Cryptosporidium	168.7	176.7	8.0	87.6	175.9	88.3
	DW5	Iron and manganese	47.2	43.2	-4.0	14.2	26.3	12.1
	DW7	The Birds/Habitats Directive	30.4	70.6	40.2	29.8	56.2	26.4
	DW8	Security of supply		8.5	8.5		0.0	0.0
	DW9	Additional physical security	84.7	113.7	29.0	79.9	71.9	-8.1
	DW10	Raw water	0.8	0.9	0.1	0.4	0.0	-0.4
	DW11	Water fittings byelaws	7.4	8.3	0.9	3.7	4.1	0.4
	DW13	Water aesthetic quality	445.4	286.9	-158.5	194.3	277.5	83.2
	DW15	Compliance with recommendations	5.5	6.2	0.7	2.8	3.1	0.3
	DW16	Water Safety Plans		9.0	9.0		4.5	4.5
	DW17	Cross connections	9.8	26.9	17.1	4.9	13.5	8.6
	DW19	Wholesome supply of water	199.1		-199.1	37.7		-37.7
	DW20	Flood Estimation Handbook		1.7	1.7		0.9	0.9
	DW21	Duplication of critical mains	24.6		-24.6	24.6		-24.6
	DW22	Algae problems in raw water sources	-50.3		50.3	-20.3		20.3
	WR1	UKTAG guideline	29.0	75.9	46.9	2.0	60.6	58.6
	WR2	Operational practice at reservoirs	28.1	48.5	20.5	3.1	8.0	4.9
	WR3	Protect water quality	28.1	0.0	-28.1	3.1	0.0	-3.0
	WR4	WFD ecological objective	28.1	4.3	-23.8	3.1	0.9	-2.2
	WR5	Compliance with water quality licences	21.3	12.5	-8.8	21.7	12.5	-9.3
		Subtotal Drinking water quality drivers	1,467.1	1,396.5	-70.6	654.0	1,063.7	409.7
	EC01	Urban Waste Water Directive	452.5	679.7	227.2	154.8	298.2	143.3
	EC02	Bathing Water Directive	16.0	149.7	133.7	11.8	146.7	134.9
	EC03	Shellfish Waters Directive	49.4	52.1	2.7	25.1	14.3	-10.8
	EC04	Freshwater for fish Directive	46.5	76.8	30.3	23.2	61.2	38.0
	EC06	Sludge use in Agriculture Directive	94.4	74.6	-19.8	45.2	0.0	-45.2
	EC07	Birds Directive		1.9	1.9		0.2	0.2
	EC08	Habitats Directive	0.8	4.2	3.4	0.8	4.2	3.4
	EC09	Dangerous Substances Directive	1.6	6.3	4.7	0.0	6.3	6.3
	EC10	Water Framework Directive	301.6	587.0	285.5	67.1	240.9	173.8
	EC11	Landfill Directive		3.5	3.5		3.5	3.5
	EC12	Integrated Pollution Prevention D		9.4	9.4		9.4	9.4
	pEC16	Revised Bathing Water Directive	7.8		-7.8	0.3		-0.3
	NH01	Section 54 WIA (Scotland) 2002		8.8	8.8		4.5	4.5
	WA01	Definition of Waste		4.9	4.9		1.6	1.6
	WQ01	Water Environment and Water Services Act		42.6	42.6		42.2	42.2
	WQ02	Environmental Act 1995, Section 34	32.7	12.0	-20.7	20.1	12.0	-8.1
		Subtotal Environmental drivers	1,003.3	1,713.5	710.2	348.3	845.2	496.9
Growth	FTP	First time provision	4.5	83.7	79.3	2.2	70.0	67.8
	RDC	Development constraints	224.9	450.7	225.8	93.6	221.4	127.8
		Subtotal Growth	229.4	534.4	305.0	95.8	291.4	195.6
Other	TBC	To be confirmed	141.6		-141.6	47.1		-47.1
	SS	Support services	11.6	-	-11.6	6.6	-	-6.6
		Subtotal Other	153.2	-	-153.2	53.7	-	-53.7
			4,957.6	5,859.5	901.9	2,200.0	3,369.3	1,169.3

Our analysis indicates that the increase in investment in the second draft business plan is principally a function of the following.

- An increase of £172 million in the capital maintenance required. This appears to be a higher estimated spend rather than a rephasing of resources.
- A reduction of £51.7 million in customer service investment. This is largely associated with a £38 million reduction in the provision for odour control, as well as the removal of £9.1 million for 'customer experience'.
- An increase of £410 million in investment in drinking water quality. The total provision over the 2006-14 period is broadly similar in the first and second draft business plans but there are significant changes in a number of areas. The investment in some water quality drivers, such as DW3⁴ and DW4⁵ appear to have been brought forward from the 2010-2014 regulatory control period to the 2006-10 period. However, there are also a number of drivers where the proposed total investment has changed. DW1⁶ and DW7⁷ have both increased significantly. The total proposed investment for the DW13⁸ driver has reduced by £159 million during 2006-14, but there has been an increase in the investment required in the 2006-10 regulatory control period of £83 million.
- An increase of £497 million in environmental improvement investment. The total proposed investment for 2006-14 has increased by some £710 million. This appears to be mainly associated with drivers EC01⁹, EC02¹⁰ and EC10¹¹. The cost of the unsatisfactory intermittent discharges (UID) programme appears to have increased significantly, and explains a large part of the change in the first two of these drivers.

- An increase of £196 million in investment on first time provision and development constraints. The first draft business plan estimated the requirement over eight years to be £229.4 million. By the second draft business plan (just 5 months later) this cost had risen to £291.4 million for just the first four years.

Figure 17.2: Changes in investment by category between the first and second draft business plans



We are particularly concerned to note the increase of £172 million in Scottish Water's estimate of the investment required for capital maintenance. We understand that the requirement to identify the investment associated with maintaining the level of service achieved at the end of Quality and Standards II was established relatively early in the Quality and Standards III process. Moreover, Scottish Water had claimed during the Quality and Standards process to have carried out detailed modelling of its requirement for capital maintenance.

⁴ Driver DW3 relates to compliance with 'other' standards i.e. Arsenic, Bromate, Copper, pH and Nitrate/Nitrite.

⁵ Driver DW4 relates to compliance with the Cryptosporidium Directions 2003.

⁶ Driver DW1 relates to compliance with a lead standard of 10µg/litre.

⁷ Driver DW7 covers requirements arising from the The Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC).

⁸ Driver DW13 relates to improvements in the aesthetic qualities of water.

⁹ Driver EC01 relates to Urban Waste Water Treatment (Scotland) Regulations 1994 (from 91/271/EEC). Unsatisfactory sewer systems. Provision of nutrient removal.

¹⁰ Driver EC02 relates to the Bathing Waters Directive (76/160/EEC).

¹¹ Driver EC10 relates to the Water Framework Directive (2000/60/EC).

We were also concerned about the extent of changes in the UID programme between the first and second draft business plans. Although the composition of the programme did change, we have been able to identify 82 UID schemes that have the same project description in both submissions. As Table 17.2 shows, Scottish Water changed almost all of the project costs. These changes show no clear pattern, but one trend appears to be that the lower cost UID schemes in the first draft business plan have become more expensive.

Table 17.2: Change in projected cost for UID projects between first and second draft business plans.

Change in cost	Project cost in first business plan			
	<£1m	<£1-3m	>£3m	Total
Decrease >50%	1	9	9	19
Decrease 20-50%	1	2	10	13
Within +/- 20%	5	7	1	13
Increase 20-50%	4	2	1	7
Increase 50-100%	-	3	-	3
Increase 100-200%	3	8	-	11
Increase > 200%	14	2	-	16
Total	28	33	21	82

In its second draft business plan, Scottish Water noted that it had some way to go in improving its understanding of its assets and its investment processes. It is possible that this explains some of the changes that the analysis above reveals. Significant changes in both the detailed unit costs and the costs by driver have caused us to scrutinise the whole programme in greater detail.

Further changes to Scottish Water's investment proposals

At the beginning of June 2005, Scottish Water submitted¹² a revised Table C covering both the 'essential' and 'desirable' investment objectives. It also submitted a second version of Table C, covering only the 'essential' investment programme. Scottish Water also attached a schedule summarising the principal changes from its second draft business plan submission of 20 April 2005.

Scottish Water's covering letter noted that the net effect of these changes in the first four-year period (2006-10)

was to reduce the post-efficiency investment cost for the desirable programme by £43 million, and for the essential programme by £24 million relative to the second draft business plan.

The Commissioner responded that he felt it was unrealistic, given the late stage of the draft determination, to expect his Office, and the Reporter, to re-assess Scottish Water's investment programme in the light of this new cost information. He also noted that the proposed changes (a number of which had already been identified by the Reporter) would not have had a material impact on his analysis of Scottish Water's costs.

The Commissioner also noted that Scottish Water could refer to these revised costs in making its representations on the draft determination. He explained that the new Commission could take this updated information into account before making its final determination.

We analysed the information contained in Scottish Water's revised Table C submission and the attached schedule. The schedule, which is shown in Table 17.3, summarises the principal changes between the second draft business plan and the revised 'essential' and 'desirable' Table C submission.

¹² Letter from Scottish Water Asset Management Director dated 2 June 2005 to the Water Industry Commissioner.

Table 17.3: Scottish Water's summary of the changes in capital expenditure required to deliver the essential and desirable ministerial objectives

Investment area	Description of change	Indicative change to Q&SIIIA (2006-10)	Indicative change to Q&SIIIB (2010-14)	Total (2006-14)
Water, waste water and UID quality	More accurate assessment of the impact of removing regional price variations (regionality)	£14m	£5m	£19m
Waste water non-infrastructure maintenance, water resources and first time provision (waste water)	Apply correct profiling of investment across Q&SIIIA and Q&SIIIB (Section A9.6 of 2DBP refers)	£39m	-£37m	£2m
Waste water non-infrastructure quality	Reduction of waste water treatment solution scopes and removal of one sludge treatment centre	-£20m	-£47m	-£67m
Unsatisfactory Intermittent Discharges	(i) Removal of duplication (within both the Q&SII and Q&SIII periods) affecting 19 UIDs and (ii) more accurate scope and cost estimating across the programme	-£78m	-£27m	-£105m
Water infrastructure maintenance	Remove double count from customer requested lead communications pipe provision	-£2m	-£2m	-£5m
Various	Minor adjustments to other Investment Programme areas	-£3m	0	-£3m
Total		-£50m	-£109m	-£159m
Second draft business plan Table C value of desirable Q&SIIIA		£3,406m ¹⁴	£2,454m	£5,860m
Change		-1.5%	-4.4%	-2.7%
	Revised Table C desirable in 2 June submission	£3,356m ¹⁵	£2,345m	£5,701m

Scottish Water's revised submission¹⁶ included a new driver 'CS12'. This reflected the Ministers' desirable objective to reduce the number of unplanned interruptions¹⁷ by 850 over the period 2006-14. Scottish Water stated that this investment had wrongly been classified as capital maintenance in its second draft business plan.

Our analysis of the impact of these changes against the programme drivers is shown in Table 17.4.

¹⁴ Scottish Water has included £36.4 million of pre 2006-07 expenditure in this figure for Quality and Standards III 'early start' expenditure.

¹⁵ Scottish Water has included £36.4 million of pre 2006-07 expenditure in this figure for Quality and Standards III 'early start' expenditure.

¹⁶ Scottish Water WIC 53 submission of 2 June 2005; in the accompanying schedule, in response to query BP29 on the second draft business plan.

¹⁷ The Scottish Minister's statement of Wednesday 9 February 2005 included a desirable objective to achieve a net reduction of 850 in the number of properties affected by unplanned interruptions in non-trunk mains by 2014. Of these, 425 are to be achieved in the 2006-10 period. It is expected that the delivery of this investment will improve the standard of service that is experienced by a number of small communities in the north-west of Scotland.

Table 17.4: Comparison of investment by driver between the second draft business plan and the revised submission¹⁸

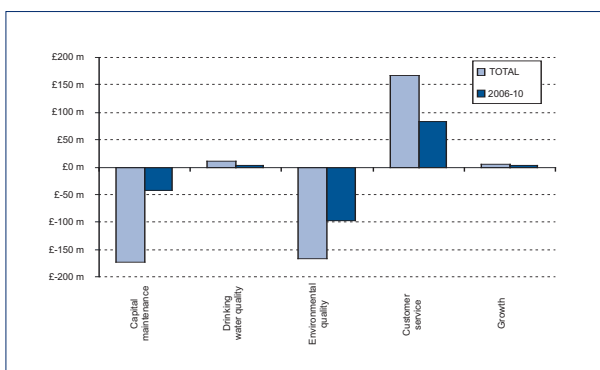
Type	Driver	Description	TOTAL INVESTMENT			2006-10		
			2nd DBP £m	REV £m	Change £m	2nd DBP £m	REV £m	Change £m
CM	CM	Capital Maintenance	2,040.4	1,866.4	- 174.0	1,084.8	1,042.6	- 42.2
	CS1	Pressure	14.3	14.3	- 0.0	5.7	5.7	-
	CS2	Odour management	47.9	47.9	-	19.1	19.1	-
	CS4	Business Metering	1.6	1.6	- 0.0	0.7	0.7	-
	CS11	Sewer Flooding	110.9	110.9	-	58.6	58.6	0.0
	CS12	Reduction in Unplanned Interruptions		168.0	168.0		84.0	84.0
		Subtotal customer service drivers	174.7	342.7	168.0	84.1	168.1	84.0
	DW1	Lead std	173.8	173.8	-	20.9	20.9	-
	DW2	Trihalomethane std	29.2	29.2	- 0.0	28.8	28.7	- 0.0
	DW3	All other std in DW directive	299.7	303.5	3.8	298.4	302.2	3.8
	DW4	Cryptosporidium	176.7	179.3	2.6	175.9	178.5	2.6
	DW5	Iron and manganese	43.2	43.2	-	26.3	26.3	-
	DW7	The Birds/Habitats Directive	70.6	70.6	0.0	56.2	54.9	- 1.2
	DW8	Security of supply	8.5	8.5	-	0.0	0.0	-
	DW9	Additional physical security	113.7	113.7	-	71.9	71.9	-
	DW10	Raw water	0.9	0.9	-	0.0	0.0	-
	DW11	Water fittings byelaws	8.3	8.3	-	4.1	4.1	-
	DW13	Water aesthetic quality	286.9	290.7	3.8	277.5	281.1	3.6
	DW15	Compliance with recommendations	6.2	6.2	-	3.1	3.1	-
	DW16	Water Safety Plans	9.0	9.0	-	4.5	4.5	-
	DW17	Cross connections	26.9	26.9	- 0.0	13.5	13.5	-
	DW20	Flood Estimation Handbook	1.7	1.7	0.0	0.9	0.9	-
	WR1	UKTAG guideline	75.9	75.7	- 0.2	60.6	59.2	- 1.4
	WR2	Operational practice at reservoirs	48.5	48.4	- 0.2	8.0	3.4	- 4.6
	WR3	Protect water quality	0.0	1.0	0.9	0.0	0.9	0.8
	WR4	WFD ecological objective	4.3	4.1	- 0.2	0.9	0.4	- 0.5
	WR5	Compliance with water quality licences	12.5	13.1	0.6	12.5	12.9	0.4
		Subtotal Drinking water quality drivers	1,396.5	1,407.5	11.0	1,063.7	1,067.1	3.3
	EC01	Urban Waste Water Directive	679.7	619.6	- 60.1	298.2	264.7	- 33.5
	EC02	Bathing Water Directive	149.7	133.6	- 16.1	146.7	130.7	- 16.0
	EC03	Shellfish Waters Directive	52.1	47.1	- 5.0	14.3	13.4	- 0.9
	EC04	Freshwater for fish Directive	76.8	66.5	- 10.3	61.2	53.7	- 7.5
	EC06	Sludge use in Agriculture Directive	74.6	64.9	- 9.8	0.0	0.0	- 0.0
	EC07	Birds Directive	1.9	1.8	- 0.1	0.2	0.2	- 0.0
	EC08	Habitats Directive	4.2	4.1	- 0.1	4.2	4.1	- 0.1
	EC09	Dangerous Substances Directive	6.3	8.6	2.3	6.3	8.6	2.3
	EC10	Water Framework Directive	587.0	537.1	- 49.9	240.9	215.2	- 25.7
	EC11	Landfill Directive	3.5	3.5	- 0.0	3.5	3.5	- 0.0
	EC12	Integrated Pollution Prevention D	9.4	10.0	0.7	9.4	10.0	0.7
	NH01	Section 54 WIA (Scotland) 2002	8.8	8.1	- 0.7	4.5	4.0	- 0.5
	WA01	Definition of Waste	4.9	4.9	0.0	1.6	1.6	0.0
	WQ01	Water Environment and Water Services Act	42.6	28.5	- 14.2	42.2	28.1	- 14.2
	WQ02	Environmental Act 1995, Section 34	12.0	7.4	- 4.6	12.0	10.2	- 1.8
		Subtotal Environmental drivers	1,713.5	1,545.7	- 167.8	845.2	747.9	- 97.3
	FTP	First time provision	83.7	84.3	0.5	70.0	70.5	0.5
Growth	RDC	Development constraints	450.7	454.4	3.7	221.4	223.2	1.9
		Subtotal Growth	534.4	538.7	4.3	291.4	293.7	2.3
			5,859.5	5,701.0	- 158.5	3,369.3	3,319.4	- 49.8

¹⁸ See footnote 15.

The principal changes appear to be as follows.

- A reduction of £42 million in the proposed investment in capital maintenance. This appears principally to result from rephrasing of capital maintenance and the transfer of expenditure in unplanned interruptions to a customer services driver. There also appears to be a number of other more minor increases and decreases.
- An increase of £84 million in investment in customer service expenditure to meet the Minister's objective for unplanned interruptions.
- A reduction of £97 million in the planned investment to meet environmental drivers. The removal of duplicate projects and re-costing of a significant element of the UID programme accounts for the majority of this difference. There is also a reduction of £26 million in the proposed investment in the Water Framework Directive.

Figure 17.2: Changes in investment by category between the second draft business plan and the revised submission



These changes appear broadly in line with the schedule that was submitted by Scottish Water. The overall impact of these changes on the total programme cost is relatively minor. However, they do have an impact on our assessment of both the scope and efficiency of the overall programme. For example, the reduction in the UID programme exceeds 10% of the proposed

investment in the second draft business plan submission.

Scottish Water has included representations in this area in its response to the draft determination¹⁹. In reaching our conclusions, we have taken account both of Scottish Water's revised Table C submission and its representations.

Progress in delivering Quality and Standards II

We received a further update from Scottish Water on progress in delivering the Quality and Standards II investment programme. This new information includes:

- the Capital Investment Return for Quarter 4 2004-05, submitted in May 2005;
- the Capital Investment Return for Quarter 1 2005-06, submitted in August 2005; and
- the Annual Return for 2004-05, submitted in June 2005.

We also received the Reporter's analysis of Scottish Water's 2004-05 Annual Return and two revised versions²⁰ of the 'WIC 18' investment baseline.

The WIC 18 baseline defines, at a project level, the investment outputs that comprise the Quality and Standards II programme. The key stakeholders²¹ supervised the process of revising the baseline²² to take account of project substitutions and better information. The WIC 18 baseline²³ allows us to monitor the delivery of investment projects that are reported in Scottish Water's Capital Investment Returns.

In the *Strategic Review of Charges 2002-06*, the Commissioner allowed for £1.81 billion to deliver Quality and Standards II. However, capital investment inflation has been consistently higher than predicted and we now calculate that the efficient cost of Quality and Standards II is approximately £1.97 billion. New outputs relating to security, the removal of hazardous substances and

¹⁹ See Chapter 18.

²⁰ Version 3.4, submitted in June 2005, and Version 3.5, submitted in September 2005.

²¹ The key stakeholders were SEPA, DWQR, the Scottish Executive, the Water Industry Commissioner (replaced by the Water Industry Commission for Scotland) and Scottish Water.

²² See 'Our work in regulating the Scottish water industry: The scope for capital investment efficiency', Volume 5, Chapter 7, page 66 for more information on this process.

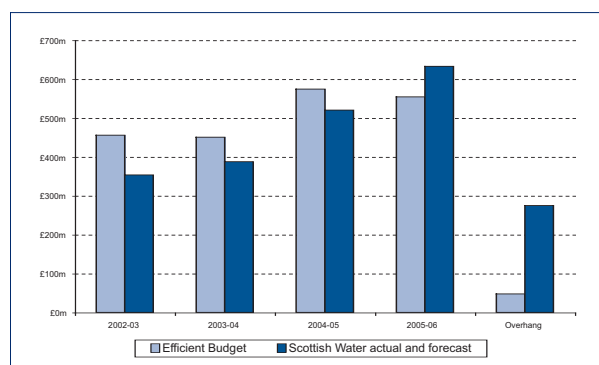
²³ In this analysis we have used WIC 18 version 3.4 as this provides a match with the project list in the Capital Investment Return.

Table 17.5: Phasing of investment programme including the impact of inflation and required new outputs 2002-06

	2002-03	2003-04	2004-05	2005-06	Overhang	Totals
Original phasing from the Strategic Review of Charges 2002-06	£435.7m	£411.1m	£500.5m	£463.0m	-	£1,810.3m
Impact of higher than expected inflation ²⁴	£11.7m	£27.5m	£62.5m	£58.9m	-	£160.7m
Additional outputs that were Included in the programme ²⁵	£8.3m	£11.7m	£11.4m	£32.0m	£47.1m	£110.4m
Efficient Budget	£455.7m	£450.3m	£574.4m	£553.9m	£47.1m	£2,081.4m
Scottish Water actual and forecast investment	£353.2m	£387.6m	£519.9m	£632.5m	£274.5m	£2,167.8m

unexpected contributions to developers, may have further increased the efficient cost of the programme to £2.08 billion. Table 17.5 shows the phasing of the original investment in the *Strategic Review of Charges 2002-06* and the impact of inflation and the required new outputs.

In its latest Capital Investment Returns, Scottish Water now forecasts expenditure of £2.17 billion to meet the objectives of Quality and Standards II. This suggests that Scottish Water will not meet the efficiency targets set in the *Strategic Review of Charges 2002-06*.

Figure 17.3: Comparison of Quality and Standards II budget and actual spending

In the draft determination, the Commissioner reported on the efficiency of delivery of that part of the Quality and Standards II investment programme that had been

completed²⁶. We updated this analysis using the latest Capital Investment Returns and Scottish Water's June Annual Return. We examined projects that have been completed to 'beneficial use'²⁷ and compared the project expenditure reported in the latest Capital Investment Return with the WIC 18 baseline.

There are 5,316 projects listed in the latest Capital Investment Return. Scottish Water stated that 3,477 (65%) have been completed to beneficial use. We have only been able to identify 3,059 Quality and Standards II projects included in the WIC 18 baseline investment programme. We included the Scottish Water Solutions incentive expenditure of £12 million in our analysis.

These projects have a WIC 18 pre-efficiency value of around £885 million. We adjusted the WIC 18 pre-efficiency value of each project upwards to take account of higher than expected inflation. We then reduced the pre-efficiency value by the average efficiency in the *Strategic Review of Charges 2002-06*. Table 17.6 shows these adjustments.

Table 17.6: Inflation and efficiency adjustments applied to projects completed to beneficial use

Inflation adjustment ²⁹	8.5%
Efficiency adjustment ³⁰	22.6%

²⁴ COPI levels obtained from the Department of Trade and Industry.

²⁵ Capital Investment Return March 2005 (including anticipated overhang in year 4).

²⁶ See *The Strategic Review of Charges 2006-10: The draft determination. Financing delivery of the investment objectives of the Scottish Ministers*, Volume 5, Chapter 4, page 41.

²⁷ When a project has reached 'beneficial use', the required output has been delivered although further costs may still be incurred.

²⁸ We have used average efficiency and inflation adjustments in this calculation. This is to ensure that Scottish Water does not benefit from late delivery of projects. In the draft determination the Commissioner used different adjustments for each year when making this calculation.

²⁹ Calculated applying the additional COPI to the profile set in the Strategic Review of Charges. With latest COPI estimates this means an additional £153.7million over the £1,810.3 of the Strategic Review of Charges 2002-06.

³⁰ Calculated using the £2,339.7million pre-efficiency and the £1,810.3 million post-efficiency set in the Strategic Review of Charges 2002-06.

We compared the adjusted post-efficiency value for each project completed to beneficial use with the actual spend reported in the Capital Investment Return. This is set out in Table 17.7.

Table 17.7: Assessment of efficiency for projects completed to beneficial use

Number of projects	3,059
WIC 18 pre-efficiency value	£885.1m
Inflation adjustment	£75.2m
Inflated pre-efficiency value	£960.4m
Efficiency target	£217.0m
WIC 18 post-efficiency value	£743.3m
Actual spend to date	£774.9m
Overspent	£31.6m
% overspent	4.2%

The Commissioner's draft determination reported inefficiency of 19.3% in the delivery of completed projects. There appears to have been an improvement over the last few months, and our current analysis indicates that the level of inefficiency may have reduced to 4.2%. If this is a real improvement, it is to be welcomed, but bearing in mind that the Draft Determination assessment was based on schemes that had already been completed to the point where they were delivering beneficial use, there has to be some concern over the integrity of the information on which these analyses are based. In particular, we are concerned about the number of projects that are not included in the WIC 18 baseline, but where there has been significant spending.

We also note that several very large projects have still to be delivered, and it is essential that the improvement in efficiency is maintained. We are particularly concerned that Scottish Water focuses on the effective and efficient delivery of the water quality and environmental projects that remain in the programme.

We updated the Commissioner's analysis of Scottish Water's performance in delivering Quality and Standards II to establish whether there should be any change in our assessment of the overhang from Quality and Standards II in to the 2006-10 regulatory control period. We now estimate that £1874 million³¹ of Quality and Standards II will have been spent by March 2006. We believe that outputs with a value of around £253 million will still need to be delivered in the 2006-10 regulatory control period³².

Further work on Scottish Water's cost base

In the draft determination, the Commissioner used Ofwat's cost base approach³³ to assess Scottish Water's relative efficiency in procuring and implementing capital projects. The cost base is a database of costs, termed 'standard costs', for a wide range of standardised projects, or units of work. These standardised projects are typical of investment in the water industry. Ofwat uses the standard costs that are submitted by the water and waste water companies to assess relative procurement efficiency.

The Commissioner compared the standard costs prepared by Scottish Water with the basket of standard costs that Ofwat received from the water and waste water companies in England and Wales for the 2004 price determination. This comparison allowed the Commissioner to assess the relative capital procurement efficiency of Scottish Water.

The Commissioner recognised that this analysis was particularly specialised. He therefore commissioned independent consultants, Faber Maunsell, to review Scottish Water's initial and final standard cost submissions and ensure that they were consistent with Ofwat's definitions, the costs used in Scottish Water investment programme and the England and Wales benchmark costs.

The results of the Faber Maunsell work were reviewed by SMC³⁴ and by Ofwat to ensure that the Commissioner's approach was consistent with that

³¹ From information in Scottish Water's Capital Investment Return for Quarter 1, 2005-06; in outturn prices.

³² This is based on Scottish Water's second draft business plan claim of £283 million minus a reduction for the effects of inflation post 31 March 2006 and restated in 2003-04 prices.

³³ See 'The Strategic Review of Charges 2006-10: The draft determination. Financing delivery of the investment objectives of the Scottish Ministers', Volume 5, Chapter 7, page 71.

³⁴ SMC (Strategic Management Consultants) is the Reporter for Yorkshire Water Services Ltd.

adopted south of the border. Following confirmation of the approach by both SMC and Ofwat, the Commissioner accepted the recommendations of Faber Maunsell.

Scottish Water submitted its initial standard costs for the cost base analysis in February 2005, and its final standard costs in April 2005. The Commissioner used Scottish Water's final standard costs submitted in April 2005 for his draft determination. In its representations on the draft determination³⁵ Scottish Water did not submit revised standard costs.

In the draft determination the Commissioner adjusted some of the standardised costs that Scottish Water submitted. His adjustments were in line with Faber Maunsell's recommendations³⁶. In light of a review of the Commissioner's approach and the comments of Faber Maunsell, SMC and Ofwat, we adjusted two further standard costs for the final determination.

As noted above, Scottish Water revised both the structure and the costing of its investment programme from the Table C that was included with its second draft business plan. This affects the weightings that are applied to each of the standard costs and hence the scope for efficiency across the entire investment programme. We recalculated the scope for efficiency on the updated investment programme using the revised cost base.

A summary of these changes and their impact on our analysis of the scope for efficiency is shown in Table 17.8.

Table 17.8: Adjustments to the cost base efficiency gap analysis

Cost base efficiency gap in draft determination (highest estimated cost programme)	24.2%
Impact of adjustments to standard costs	+0.2%
Impact of changes to the Table C investment programme	-0.1%
Cost base efficiency gap for final determination	24.3%

³⁵ See Chapter 18.

³⁶ The Faber Maunsell cost base report can be seen on our website at www.watercommission.co.uk

³⁷ See Appendix 4 of Ofwat's final determination for 2005-10.

³⁸ This is after the removal of both duplicate project entries in Scottish Water's programme and PPP schemes.

Regional variation in construction prices

At the 2004 price review, Ofwat undertook a study of regional variations in construction, labour and tender costs in England and Wales. Ofwat concluded that some companies faced regional prices that were 4% to 18% higher than the England and Wales average³⁷. Ofwat made a downwards adjustment to the 'standard costs' of these companies before assessing relative capital efficiency.

The building and construction cost indices that are used by Ofwat are published by the Building Cost Information Service (BCIS). Indices are published for 68 regions of the UK. We reviewed this information and applied Ofwat's methodology to determine a regional price factor for Scottish Water that can be compared with the average across Great Britain. Our analysis shows that the price of construction in Scotland is around 8% lower than the average cost in Great Britain. Only two regions in Scotland (Orkney and Shetland) have a higher price factor than the average in Great Britain.

Recent construction prices in Wales and north east England, however, are similar to those reported in Scotland. We have, therefore, not made an adjustment for regional construction price variations in this review. We will continue to monitor this information for future reviews.

Review of the additional information that is now available on the unit cost of UID schemes

In the draft determination the Commissioner noted that both the Reporter and his independent consultants had highlighted significant concerns relating to the scoping and costing of the UID programme that was contained in Scottish Water's second draft business plan.

In its second draft business plan, Scottish Water proposed UID investment of £601 million³⁸ in the period 2006-10. The Commissioner assessed the current lowest realistic cost for this UID programme as £126 million and the highest estimated cost to be £252 million.

The lowest realistic cost was based on an assessment of average UID project costs of around £0.45 million both in England and Wales³⁹ and in Scotland. The highest estimated cost was provided by his independent consultants and was based on their assessment of a sample of 40 of the UID schemes.

Following the draft determination, we carried out additional work on the average unit costs of UID projects. Ofwat provided further information on UID costs in England and Wales, both on an historical basis and by environmental driver. We also carried out further analysis of project outturn costs in Scotland during the current regulatory control period.

The further information provided by Ofwat allows us to calculate the average pre-efficiency costs for schemes that have a bathing water driver and those that do not. UID schemes with a bathing water driver tend to attract higher unit costs, due to the higher standards required in the discharge of water and the cost of providing storage.

Our analysis indicates that, in England and Wales, the average pre-efficiency cost of UIDs with a bathing water driver in the companies' AMP4 submissions was around £1.29 million⁴⁰. The average cost for the remaining UIDs with other drivers was £0.44 million.

Of the 258 UIDs in Scottish Water's programme⁴¹, we have identified 75 projects that have a bathing water driver. In its representations on the draft determination, Scottish Water has provided additional information on the composition of the UID programme. In Chapter 20 we provide a further breakdown of the programme into the categories of 'coastal water quality', 'inland water quality' and 'aesthetic' UID schemes. This allows the 75 bathing water projects to be broken down further into the coastal water quality schemes, which typically have higher unit costs due to storage requirements, and the aesthetic schemes where simple screening may be all that is required.

Using the revised unit costs for the bathing water and non-bathing water UIDs would give a total programme cost of around £177.3 million. This is above the lowest realistic cost identified in the draft determination of £126.0 million but below the highest estimated cost of £252.4 million.

We have also analysed historic UID project costs in both England and Wales and in Scotland. In its 1999 final determination, Ofwat allowed capital expenditure of £1,760 million⁴² for the 4,682 UID schemes⁴³. This is equivalent to a unit cost of around £0.45 million per scheme in 2003-04 prices. This allowance seems to be broadly consistent with Ofwat's 2004 price review. It would suggest that unit costs have remained broadly consistent. We note that outturn unit costs to 31 March 2005 appear to average approximately £0.28 million. This would suggest that the companies have achieved significant efficiencies.

Table 17.9: UID costs in England and Wales in the period 2000-05 (in 2003-04 prices)

	Company submissions to Ofwat at 1999 price review	Ofwat 1999 final determination	Outturn costs to 31 March 2005
Number of UIDs	4,682	4,682	3,925
Total capital expenditure	£2,629m	£2,088m	£1,080m
Average unit cost	£0.56m	£0.45m	£0.27m

In its 1994 price review, Ofwat allowed for £848 million⁴⁴ for the companies to address 1,160 UIDs. This equates to £0.73 million per UID in 2003-04 prices. The outturn costs indicate that companies delivered the UIDs for an average cost of £0.50 million each.

We also analysed further information on the project outturn costs for CSO⁴⁵ schemes in Quality and Standards II. We used the WIC 18 baseline investment programme⁴⁶ for Quality and Standards II, along with Scottish Water's actual and forecast expenditure from its Capital Investment Return⁴⁷.

³⁹ Based on information provided by Ofwat, the Commissioner used the average pre-efficiency cost of 'AMP4' UID schemes in company submissions – £0.45 million in 2003-04 prices.

⁴⁰ In 2003-04 prices.

⁴¹ This number is based on Scottish Water's revised Table C submission of 2 June 2005 and its representations of 23 September 2005. It excludes duplications, surface water outfalls and dual manholes. The figure used in the draft determination was 280.

⁴² May 1999 prices.

⁴³ Based on information from Table 22b of Ofwat's 1999 final determination.

⁴⁴ 2003-04 prices

⁴⁵ Combined sewer overflows, the most common type of UID project

⁴⁶ "WIC 18" is the regulatory submission which contains a project listing of the Quality and Standards II baseline investment programme. Version 3.4 was used in this analysis.

⁴⁷ Capital investment Return for Quarter 1 2005-06.

The WIC 18 programme lists 428 UID projects in Quality and Standards II. Of these, nine UID projects have no reported actual or forecast costs in the Capital Investment Return so we excluded these projects from our analysis. There are 419 UID projects with a total 'actual and forecast' budget of £129.7 million in 2003-04 prices. This would suggest an average post-efficiency unit cost of £310,000 in 2003-04 prices. This relatively low unit cost can be explained by the distribution of costs for these projects.

Figure 17.4: Distribution of UID post-efficiency project unit costs in Quality and Standards II

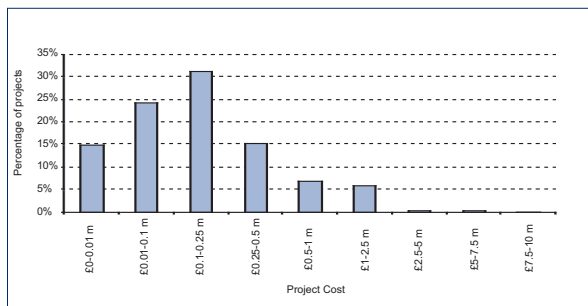


Figure 17.4 indicates that nearly 40% of Quality and Standards II UID schemes are forecast to cost less than £100,000 each. Scottish Water informed us that these low cost schemes relate to aesthetic CSO projects where the requirement is only for additional screening. However, even if we exclude all of the projects with costs below £100,000 then the average cost only rises to £490,000 in 2003-04 prices. This appears to be consistent with average UID costs in England and Wales – especially when we take account of the lower capital expenditure efficiency of the industry in Scotland.

A summary of the range of UID programme costs arising from our analysis is shown in Table 17.10.

Table 17.10: Average UID project costs (in 2003-04 prices)

	Company submissions	Allowed investment	Outturn costs
'AMP 2' 1995-2000	£801,000	£731,000	£504,000
'AMP 3' 2000-05	£561,000	£446,000	£275,000
'AMP 4' 2005-10	£450,000 ⁴⁸	£467,000	-
'AMP 4' non-bathing water projects	£439,000	£462,000	-
'AMP 4' bathing water projects	£1,294,000	£1,135,000	-
Quality and Standards II – all projects	-	-	£310,000
Quality and Standards II excluding schemes < £100,000	-	-	£490,000
Scottish Water second draft business plan ⁴⁹	£2,457,000	-	-
Scottish Water revised Table C submission ⁵⁰	£2,326,000	-	-
Draft determination highest estimated	£901,000 ⁵¹	£762,000	-
Draft determination lowest realistic	£450,000 ⁵²	£356,000	-

This more detailed analysis of UID costs is fully consistent with the cost range identified by the Commissioner in his draft determination. Our analysis has taken account of historic UID costs in England and Wales since 1995 and current costs in Scotland. It indicates that the average unit costs for UIDs do vary with the type of scheme. There is a range from unit costs under £100,000 for 'aesthetic improvement' projects to an average unit cost of approximately £1.3 million for bathing water UIDs.

⁴⁸ This value relates to the 1,932 UIDs identified by Ofwat as in the original company business plan submissions. The AMP 4 'allowed investment' number relates to the 2,005 UIDs that were in Table 39 of Ofwat's final determination. Hence these numbers cannot be directly matched.

⁴⁹ Excluding surface water outfalls and dual manholes.

⁵⁰ Excluding surface water outfalls and dual manholes.

⁵¹ This is the pre-efficiency amount allowed in the draft determination, excluding £6 million that was allowed for UID study work.

⁵² This is the pre-efficiency amount allowed in the draft determination, excluding £6 million that was allowed for UID study work.

Discount rate for calculation of the appropriate contribution to developers

In its second draft business plan, Scottish Water proposed to invest some £221 million on providing strategic network capacity for new development. Scottish Water claimed a further £70 million to make first time provision of water and waste water services to existing properties. In the draft determination, the Commissioner assessed the total funding requirements for strategic network capacity and first time provision to be in the range of £185 million to £215 million.

Scottish Water's assessment of its likely contributions to developers used a very low discount rate (0.72%) when establishing the value of a new customer on the network. This increased the value of the new customer and overstated the 'reasonable cost'⁵³ contribution.

In the draft determination⁵⁴, the Commissioner decided that the discount rate should be in a range from 2.1% (the real pre-tax cost of capital for Scottish Water) to 4.25% (the cost of capital used in England and Wales). This increased discount rate reduced the reasonable cost contributions from 8.3% to 19.3%.

We carried out further analysis on the discount rate that should be applied when assessing the future value of customers. We are particularly concerned that, in establishing the future value of new customers, Scottish Water should achieve an appropriate balance of costs between new customers and existing customers. In particular, we are concerned that a discount rate that is below a market cost of capital could be interpreted as providing 'State Aid'⁵⁵.

We decided that the discount rate that is used by Scottish Water should be based on a market cost of

capital. We therefore used the rate that is currently applied by Ofwat in England and Wales⁵⁶, ie 3.75% real. We can see no reason why developers should benefit to a greater extent in Scotland than in England and Wales. Our approach should also avoid any potential State Aid issues.

Revisions to the investment programme review that was carried out by the Commissioner's engineering consultants

The investment proposals contained in Scottish Water's second draft business were scrutinised in detail by the Reporter, the quality regulators⁵⁷ and the Commissioner's Office. The Reporter raised a number of concerns about the scope and composition of the proposed investment programme.

The Commissioner therefore recruited independent engineering consultants, Faber Maunsell and Black and Veatch, to provide a more detailed review of the capital programme. The findings of their review were broadly consistent with other aspects of the Commissioner's analyses in determining that Scottish Water's proposed investment programme was over-scoped. The Commissioner also drew extensively on advice from Ofwat in coming to his conclusions about the level of capital expenditure that should be allowed for.

Following publication of the draft determination in June 2005, Faber Maunsell contacted us on a number of occasions. They indicated that Scottish Water Solutions⁵⁸ had made strong representations to them about the independent review they had carried out. Scottish Water had previously informed us that Scottish Water Solutions had costed significant elements of the capital programme.

⁵³ The 'reasonable cost' contribution is the allowance made by Scottish Water against the costs of connection, to take account of the future value of the customer.

⁵⁴ See 'The Strategic Review of Charges 2006-10: The draft determination. Financing delivery of the investment objectives of Scottish Ministers.' Volume 5. Chapter 14, page 129.

⁵⁵ 'State Aid' is a European Commission term which refers to forms of assistance from a public body, or publicly-funded body, given to undertakings on a discretionary basis, with the potential to distort competition and affect trade between Member States of the EU.

⁵⁶ The rate that is currently applied by Ofwat is contained in regulatory letter RD 06/05 'Interest rates for requisitions and infrastructure charges - six monthly review'.

⁵⁷ The Drinking Water Quality Regulator and the Scottish Environment Protection Agency.

⁵⁸ Scottish Water Solutions is a joint venture partnership between Scottish Water, which owns 51%, and two consortia: Stirling Water (comprising Thames Water, construction groups KBR, Alfred McAlpine and MJ Gleeson) and UUGM (which is made up of United Utilities, Galford Try and Morgan).

In late August 2005, the Managing Director (Environment) of Faber Maunsell contacted us. He indicated that Faber Maunsell was uncomfortable with some of the language used in the report and the high profile that the report had received within the industry. He suggested that, had they had more time, Faber Maunsell would have sought to improve the language and give more explanatory context to the work. He noted that he had received negative comment from companies south of the border about the report. Notwithstanding these concerns, he confirmed that he was content with the content and conclusions of the report.

Faber Maunsell informed us that they had conducted an internal 'peer group' review of their report. They proposed to make changes to the wording of the report. We received a revised report in the middle of September 2005. The report was signed by the Chief Engineer of Faber Maunsell. The changes in the report relate entirely to wording.

- The revised report is marked "Reworded Sept 2005 following independent review by Faber Maunsell".
- There are no changes to the numerical findings of the review and the 'percentage retained' figures remain as they were in the original report.
- A number of references have been included with regard to the short timescale in which Faber Maunsell had to carry out the review.
- Several references are included to acknowledge that Scottish Water had no opportunity to comment on, or verify, the report's findings.
- Two sections, which noted the involvement of Scottish Water Solutions and United Utilities in the costing process, have been removed.
- A new section has been included, which states that Faber Maunsell's "judgements may have been influenced" by the lack of data at some water treatment works.

We have reviewed the revised report in detail. We note that, following its internal independent review, Faber

Maunsell has reconfirmed the numbers and conclusions that were contained in the original report. The representations of Scottish Water, and other interested parties, are discussed in Chapters 18 and 19.

We are concerned about the pressure that appears to have been applied to Faber Maunsell staff in connection with this work. Good regulation relies on the provision of impartial, objective advice and we would view any attempt to influence this impartiality very seriously. We are content that Faber Maunsell still considers that their review was analytically sound.

Summary

In this chapter we reviewed the updated information on Scottish Water's proposed capital investment to meet ministerial objectives. We assessed the impact of this updated information and our additional analyses on the allowed for capital expenditure in the Commissioner's draft determination.

In this chapter we considered the following updated and additional information.

- **Changes in Scottish Water's investment proposals between its first and second draft business plans.** We concluded that there were significant changes in the costs of the investment programme which cannot entirely be attributed to the factors identified by Scottish Water. In particular, there were marked changes in the investment required to alleviate development constraints and maintain asset serviceability to customers.
- **Scottish Water's revised Table C submission.** This has a relatively minor impact on the overall programme cost but there are some significant changes in the composition of the programme (for example the UID programme costs and the reclassification of investment for interruptions to supply). These changes impact on our assessment of the scope for efficiency.
- **Scottish Water's progress in delivering Quality and Standards II.** Our updated analysis indicates that Scottish Water may have to improve the efficiency with which it delivers the Quality and

Standards II programme, but that performance still lags behind the targets that were set in the *Strategic Review of Charges 2002-06*. It is concerning that a significant number of projects that have been completed are not in the 'WIC 18' baseline.

- **The impact of regional price factors on Scottish Water's standard costs.** This indicated that the price of construction in Scotland is lower than the average cost in Great Britain. We have not taken account of any regional price factor in the final determination because the benchmark companies are principally in areas with only slightly higher price levels.
- **The average costs for UIDs, taking account of both historic costs and different scheme drivers.** Our analysis indicates that the costs do vary with the type of scheme, ranging from under £100,000 for 'aesthetic improvement' projects to an average of around £1.3 million for bathing water UIDs. Historic costs in England and Wales, as allowed by Ofwat, have varied from an average of £0.73 million in 'AMP2' to £0.47 million in 'AMP4'.
- **We carried out further analysis on the discount rate that should be applied when assessing the future value of customers.** We concluded that this discount rate should reflect a market cost of capital. We therefore used the rate that is currently applied by Ofwat in England and Wales⁵⁹. This should avoid any potential State Aid issue.
- **Faber Maunsell's revised report on Scottish Water's proposed investment programme.** An independent internal review reconfirmed the numbers and conclusions that were contained in the original report. There have been a number of changes to the commentary but these do not have a material impact on the conclusions reached.

⁵⁹ The rate that is currently applied by Ofwat is contained in the regulatory letter, RD 06/05 'Interest rates for requisitions and infrastructure charges – six monthly review'.

Chapter 18:

Scottish Water's representations

Introduction

In the draft determination, the Commissioner set out his view of the capital expenditure that he should allow for to meet the 'essential' and 'desirable' objectives of the Scottish Ministers. Scottish Water's representations on the draft determination commented in detail on the Commissioner's proposals. This chapter summarises their representations. A copy of Scottish Water's full written representation, which we received on 23 September 2005, along with detailed supporting information provided by Scottish Water, is available on our website.

Scottish Water's overview of investment issues

The Executive Summary of Scottish Water's submission provided an overview of its representations on the allowed for level of capital investment in the draft determination. Scottish Water stated that:

- The charge limits proposed in the draft determination are dependent on reductions in the costs of the investment programme that are unachievable.
- Grossly insufficient funding has been allowed to deliver Ministers' objectives for customer service performance and quality improvements.
- The draft determination proposes that all of the Ministers' objectives - 'essential' and 'desirable' - can be achieved by 2010 for investment of £2,100 million. This is 38% less than the £3,387 million Scottish Water identified in its second draft business plan.

Scottish Water stated that the Commissioner's reduction in its proposed level of capital investment is based on a combination of the following:

- undue reliance on a single study by Faber Maunsell, which is materially flawed and fails to take proper account of regulators' requirements;
- unrepresentative benchmarking of the costs of schemes with those in England and Wales, both for

unsatisfactory intermittent discharges (UIDs) and drinking water quality, which ignores fundamental differences in the scope of the projects in Scotland; and

- the use of econometric models to justify a 21% to 36% reduction in capital maintenance from recent levels.

On capital maintenance, Scottish Water asserted that, at a time when companies in England and Wales are increasing their investment on capital maintenance, it is not credible that Scottish Water, with a legacy of poor quality assets, particularly water mains, should be reducing investment in this area.

Scottish Water suggested that it is for the Scottish Ministers, with DWQR and SEPA, to consider whether the timing of any of their objectives should be revised.

Scottish Water's representations on investment and outputs

In its representations, Scottish Water noted that the draft determination included a 35% to 49% reduction in the investment costs that it had proposed in its second draft business plan, with a 38% reduction used to model charges for customers.

The key issues raised in Scottish Water's representations in relation to investment and outputs are summarised below.

The Faber Maunsell study

Scottish Water made a number of comments about the Faber Maunsell study. It stated that:

- The consultants had reviewed only 40 of the 294 UIDs in the programme, yet had extrapolated the results to the entire UID programme; and that the study reviewed 42 of the 230 water treatment works in its programme but these site visits had been brief.
- Faber Maunsell's approach to the investment review was unsatisfactory. In particular, they had only four

weeks to complete the work, and the terms of reference had never been disclosed, nor did they appear ever to have been finalised.

- Faber Maunsell's methodology was: 'flawed, biased and contained serious errors'. The impact of these errors was a reduced allowed for level of investment. Further, Faber Maunsell had a fundamental misunderstanding of the arrangements in Scotland whereby Ministers specify the objectives that are to be met and the quality regulators define the required improvements.
- It had particular concerns about the report's assessment of 'need'. It considered that the report challenged the need for the investment identified during the Quality and Standards III process. As a result, Scottish Water argued, the retained investment is insufficient to make all of the improvements in water quality that are required by the DWQR, and the sum retained is only sufficient to perform further investigation.
- In considering the study's recommendation that investment is withheld from 28%¹ of the drinking water quality projects pending further investigation to confirm need, Scottish Water asserted that this finding was misinterpreted in the draft determination, which adopts the reduced investment but retains 100% of the required outputs.
- Scottish Water also had concerns about Faber Maunsell's assessment of 'scope' and 'strategy'.
- The report contained some seemingly arbitrary adjustments and manifest errors of understanding. Scottish Water attributed this problem to Faber Maunsell's approach of withholding the scoring system from the engineers who were assessing the projects.
- The approach taken to analyse drinking water quality was inconsistent with the DWQR's requirement for robust assets, which are compliant over a range of operating conditions.
- Reductions for 'lack of strategy' in investment at water treatment works stemmed from misunderstandings about Scottish Water's assets. In addition, the overall scoring system that was used in the report did not allow for any potential underscoping. This would lead to an underestimate of the required investment.
- There was no evidence that the matrices used in the report to assess the level of investment required had been calibrated against investment programmes in England and Wales or elsewhere. In addition, the sample sizes were inadequate to achieve reasonable levels of statistical confidence; and the complex statistical methodology was inappropriate for a study of such limited duration, placing too much weight on subjective scoring assessments.
- Scottish Water asserted that Faber Maunsell had recognised that the report was flawed and as a result had issued a revised report that contained extensive revisions and significant qualifications. These revisions did not change Scottish Water's view that the approach and analysis were fundamentally flawed. Scottish Water asserted that we should not rely either on the original or the revised report in coming to our conclusions.

Scottish Water's proposals for Drinking Water Quality and UID investment

In its representations, Scottish Water asserted that we should rely on the more robust analysis of its water quality investment which the Reporter had undertaken. Scottish Water stated that, while it disagreed with the Reporter on some aspects of his conclusions, they were at least based on logic and demonstrated a better understanding of the Scottish environment and of Scottish Water's assets.

Scottish Water argued that the investment assumed in its second draft business plan for UIDs should be allowed in the final determination. It agreed with the need for studies of the three large catchments at Meadowhead, Stevenston and Portobello that had been

¹ 64 of the 230 water treatment works already in the programme.

identified in the draft determination. However, the amount allowed for this investment should be as Scottish Water had set out in its second draft business plan.

Scottish Water also considered that the 73 UIDs within the Glasgow Strategic Drainage Plan area should be regarded as a notified item. It asserted that the average costs of £190,000 to £390,000, implicit in the draft determination, were wholly inadequate. Scottish Water stated that the high end of the allowed range may be sufficient for some of the aesthetic UIDs. However, in its view, storage needed to be constructed at 68% of the UIDs outside the three large catchments because they are inland UIDs which have an adverse impact on the receiving water quality. The average cost of these projects, Scottish Water noted, would be far greater than £390,000.

Scottish Water also asserted that it was unlikely that all of the construction work on the UIDs in these catchments would be complete before April 2010. As a result, £250 million of UID and related investment would have to be completed after March 2010. Should Scottish Water be required to deliver all of the UIDs by then, it would not be possible to deliver the programme efficiently.

Benchmarking with England and Wales

Scottish Water argued that the use of benchmarking with England and Wales, to support reductions in the allowed for investment, is flawed. It stated that the Commissioner used over-simplistic and unrepresentative benchmarking with the average cost of uCSOs² in the Quality and Standards II period and in the England and Wales AMP4 UID programme to assess the level of investment required to meet ministerial objectives.

Scottish Water was concerned that this benchmarking ignored the different mix of projects within each of these UID investment programmes. Its own analysis indicated that the different mix of projects in its programme necessitated a much higher average cost.

Scottish Water also asserted that the Commissioner had made false comparisons of its drinking water quality programme with the AMP4 programme in England and Wales. It noted that the nature of the improvements required at water treatment works in Scotland is very different from the nature of the improvements being made in England and Wales. In addition, the current AMP4 investment programme is now focussed on minor upgrades and 'add-ons', whereas over 60% of Scottish Water's projects are major refurbishment or complete replacement of works.

Capital maintenance

In its representations, Scottish Water asserted that the draft determination dismissed its work on the common framework approach to capital maintenance planning (CFACMP)³. It noted that the justification provided in the draft determination was that Ofwat had assessed Scottish Water's implementation of the common framework to be 'trailing'. Scottish Water disagreed with this conclusion.

Scottish Water noted that Ofwat's analysis was undertaken without the benefit of the Reporter's conclusions. It further advised that it had commissioned independent analysis by experienced practitioners⁴, and that this analysis had indicated a higher rating.

According to Scottish Water, Ofwat reserved the 'trailing' category for companies that had not attempted to apply the CFACMP. Scottish Water argued that companies that had made some progress in applying the principles of the CFACMP were generally judged to be 'below intermediate'. Such a grading allowed an increase in the allowed for level of capital maintenance.

Scottish Water considered that if Ofwat had reviewed its capital maintenance methodology with the benefit of the Reporter's review, Scottish Water would have received an assessment of 'below intermediate', or better, and would have received an increased allowance for capital maintenance as a result.

² Unsatisfactory combined sewer overflows (uCSOs), the most common type of UID.

³ The draft determination used the acronym CMPCF for this process. The reader should regard the acronyms as synonymous.

⁴ Montgomery Watson Harza, *Independent review of Capital Maintenance Investment Planning* (August 2005).

Scottish Water asserted that the draft determination made no additional allowance for capital maintenance beyond the historic level in England and Wales. It suggested that this ignores the poor state of the assets in Scotland and the resulting poor levels of service to customers.

Scottish Water noted that in its 2004 price review, Ofwat had allowed an increase in capital maintenance expenditure in the investment period covering 2005-10. Scottish Water stated that the level of capital maintenance expenditure estimated in the draft determination to maintain serviceability is a 21%-36% reduction from historical expenditure and a 27%-41% reduction from that included in the second draft business plan. Scottish Water asserted that the draft determination underestimated its capital maintenance requirements for the following reasons:

- the condition and performance of Scottish Water's assets are worse than the average in England and Wales;
- the implied expected life in the WICS modelling of water mains of between 100 and 200 years was too long to maintain serviceability;
- no account had been taken of the ministerial requirement to reduce the levels of interruption to water supply;
- the cost of £24 million to maintain lateral sewers and public septic tanks had not been recognised;
- an algebraic error in the econometric models understated its capital maintenance investment by around £41 million;
- the backward-looking nature of the models did not take account of the increase in capital maintenance that was allowed to the companies in England and Wales for 2005-10;
- the £20 million allowance to reflect phasing of investment in quality enhancement was wholly inadequate – Scottish Water claimed that £100 million was required; and

- capital maintenance needed to increase by £37 million to take account of the most recent information contained in Scottish Water's 2005 Annual Return.

Scottish Water noted that the Reporter had reviewed its capital maintenance proposals carefully and concluded that the estimates were reasonable and may be understated for non-infrastructure investment. It asserted that its second draft business plan set out the appropriate level of capital maintenance investment.

Growth: development constraints and first time provision

Scottish Water questioned the reductions in the funding that had been allowed to remove development constraints, and suggested that this investment was dependent on the action of third parties.

Scottish Water noted that the draft determination proposed that customers should contribute £49-£61 million more to the cost of development constraints and first time provision than Scottish Water had assumed in its second draft business plan. The draft determination had also adopted a higher discount rate for calculating the value of new customers than Scottish Water's cost of capital.

Scottish Water questioned why the benefits of public sector ownership should accrue only to existing customers. It concluded, however, that it was broadly indifferent to the required customer contributions, provided the final determination was consistent with the Scottish Executive's forthcoming regulations.

Scottish Water noted that only 6% of first time connections are at the customer's request. The remainder are SEPA priorities and Scottish Water has to meet the full cost of these. Scottish Water noted that the draft determination had treated first time provision in a similar manner to development constraints.

Capital efficiency

In its representations, Scottish Water noted that the draft determination proposed capital efficiency targets of 15.4% to 20.8%. Scottish Water considered that:

- the calculation of capital efficiency was flawed and was inconsistent with the Ofwat approach; and
- the draft determination applied the capital efficiency reduction after having already reduced the investment programme to reflect overscoping.

It suggested that Ofwat's targets for capital efficiency should be the only reduction applied.

Scottish Water also argued that the efficiency targets did not recognise that much of the investment will be prioritised by multi-stakeholder groups, and that there will be less scope for efficiency gains than investment that is wholly managed by Scottish Water.

Scottish Water commented that the Commissioner had asked for several adjustments to the 'standard costs' it had submitted. It suggested that these standard costs had been reviewed by the Reporter and confirmed to be consistent with Scottish Water's investment programme. Scottish Water argued that the consistency between the cost base and the costing of the investment programme had been compromised as a result of the adjustments.

Scottish Water recommended that we should adopt an efficiency target of 9.5% for 2006-10. This is in line with the target suggested in Scottish Water's second draft business plan.

Scottish Water also noted that the draft determination had applied a further £55 million efficiency in recognition of efficiencies claimed by East of Scotland Water Authority in 2001. Scottish Water considered this to be inappropriate.

Omission of early start programme

Scottish Water noted that the draft determination did not provide for 'early start' investment prior to April 2006. It argued that as a result the draft determination understated its total required investment by £34 million. Scottish Water suggested that this made the investment programme undeliverable because of the lack of early investment in planning and design.

Profile of investment

Scottish Water stated that its business plan clearly indicated that it could not deliver all of the Ministers' objectives efficiently by 2010. It also stated that the requirement to meet the 2008-09 drinking water objectives led to an imbalance in its investment programme.

Scottish Water claimed that, if it was to deliver the programme efficiently, there would be an 'overhang' of investment into 2010-11 and possibly 2011-12.

Investment at PPP sites

Scottish Water did not agree with the draft determination's conclusion that certain projects⁵ should be funded by the PPP company through the existing contracts. It argued that the amount of investment required at PPP sites is greater than that which the PPP company is obliged to fund, even with an increase in the annual fee. Scottish Water also identified two UID projects that were not on PPP sites and therefore should be included in its investment programme.

Scottish Water noted that the draft determination stated that investment at PPP works should not be included in the 'Part 4' costs for investment in removing development constraints. Scottish Water asserted that it may need to seek additional funding for this through an interim determination.

Scottish Water argued that all of the capital investment proposed for PPP sites in its second draft business plan should be included in the final determination.

Quality and Standards II performance

Scottish Water stated that its second draft business plan included 43 projects part completed in Quality and Standards II which were due to be completed in the Quality and Standards III period. It was concerned that the £14 million funding for these projects in 2006-07 had not been included in the draft determination.

⁵ These projects are identified in the draft determination, Volume 5, Table 14.8, page 124.

Capital inflation on the Quality and Standards II ‘overhang’

Scottish Water noted that the draft determination reduced its claimed allowance to complete Quality and Standards II because capital inflation beyond 2005-06 should not be included. Scottish Water argued that its forecast did not include inflation after March 2006.

Introducing competition and the licensed business

Scottish Water stated that the draft determination included an efficiency challenge of more than 45% for new capital costs relating to the introduction of competition.

Supporting information provided by Scottish Water

Scottish Water provided a number of additional pieces of written information to support its representations on capital investment. Copies of the full information, which were provided by Scottish Water as Appendices X2.1 to X2.13 of its representations, can be found on our website. The key points from the reports are summarised below.

An illustration of the internal inconsistencies in the matrices used in Faber Maunsell’s analysis

This report provided more information to support Scottish Water’s assertion that the Faber Maunsell matrices had not been subject to calibration against any real water industry programmes. Scottish Water considered that the matrices had two significant flaws:

- the scheme scope/strategy reduction matrix is internally inconsistent; and
- the definitions of the capital expenditure scores are inconsistent and lead to a downward bias.

‘Statistical critique of Faber Maunsell report’, NERA

NERA’s report (September 2005) provided an evaluation of Faber Maunsell’s approach to assessing Scottish Water’s investment proposals for water treatment works and UIDs. The report considered:

- stratification and sample selection,
- the scoring matrices, and
- the uncertainty and sampling error.

Following detailed analysis of these factors, Nera concluded that there were a number of statistical flaws in Faber Maunsell’s methodology. They estimated higher allowances for capital investment than those set out in the Faber Maunsell report, and these are shown in Table 18.1.

Table 18.1: NERA’s estimate of the justified reductions

Programme	Faber Maunsell mean estimate		NERA best estimate		WIC proposed retention factor range
	Mean	Upper bound	Mean	Upper bound	
Water treatment works	50%	55%	>70%	>76%	50% - 70%
UID	42%	45%	>42%	>50%	21% - 42%

Examples of undercosting and risk

Scottish Water stated that the Reporter had identified a number of specific risks and examples of under-scoping that the Faber Maunsell review had not properly addressed. It asserted that these examples supported its contention that its second draft business plan costs were reasonable. Scottish Water provided a number of examples in support of this assertion.

Examples of perceived overscoping and poor quality information

Scottish Water noted that Faber Maunsell cited several examples of overscoping and poor quality information in the UID programme proposals. Scottish Water examined a number of the examples and highlighted what it perceived were errors in Faber Maunsell's understanding or interpretation. Scottish Water's report accepted that there were some errors in its information relating to UIDs, but disagreed with Faber Maunsell's comments regarding the lack of an audit trail.

SEPA's confirmation on the extent that the investment proposals meet ministerial objectives

Scottish Water noted that SEPA had confirmed⁶ that Scottish Water's proposed investment programme met the Ministers' environmental objectives. It also noted that SEPA had identified some minor issues relating to the scope and definition of individual schemes, which will need to be addressed. Scottish Water stated that the draft determination was its first indication that SEPA was not entirely satisfied with its investment proposals.

English and Welsh companies' comments on AMP3 and AMP4 UIDs

Scottish Water provided seven statements which it stated had come from water and sewerage companies in England and Wales. The statements acknowledge that these companies adopt a similar approach to costing UIDs.

Removal of PFI schemes

In this appendix, Scottish Water set out a series of more detailed concerns in relation to the treatment of PFI schemes in the draft determination.

Rejection of Scottish Water's capital maintenance modelling

This appendix contained more detailed representations from Scottish Water to support its objections to the

Commissioner's conclusions on the appropriate level of capital maintenance. Scottish Water provided a tabular assessment comparing Scottish Water's infrastructure data with that of the companies in England and Wales. Scottish Water suggested that this showed that it is average or above average in all categories except mains repairs. It argued that the impact of the below average rating on mains repairs is negligible.

Scottish Water stated that the SARRAS⁷ failure mode analysis for its non-infrastructure assets is as good as any that is used in England and Wales. It stated that SARRAS considers its non-infrastructure asset and performance data to be only marginally worse than that of a typical water and sewerage company in England and Wales.

Assessment that Scottish Water's application of CFACMP is 'trailing'

Scottish Water provided more detailed information about why it did not accept Ofwat's assessment of its use of the common framework. It concluded that Ofwat's lack of knowledge of the Quality & Standards III capital maintenance planning process was evident. It also stated that Scottish Water's poor scoring in many areas was not surprising given that it was unaware that it was to be assessed on this basis.

An analysis of the WIC's approach to capital maintenance modelling, NERA

In this report NERA analysed the approach that had been taken in the draft determination to estimate the appropriate level of Scottish Water's capital maintenance.

NERA stated that its attempt to replicate the approach suggested capital maintenance costs that were some £13 million higher than the draft determination had allowed for. NERA noted that this difference could be related to its adjustment of Scottish Water's 2003-04 published information.

NERA outlined what it asserted were significant problems with the draft determination's methodology.

⁶ See the draft determination, Volume 5, Chapter 14.

⁷ SARRAS is the facility used by Scottish Water to model the non-infrastructure capital maintenance requirements.

These problems would result in an underestimate of Scottish Water's predicted costs. NERA provided revised capital maintenance predicted costs, and these are shown in Table 18.2.

Table 18.2: NERA capital maintenance predicted costs

Approach	Predicted cost estimate (four-year)	Change
WIC's draft determination estimate	£585.5m	
Nera's replication of WIC approach	£598.8m	+£13.3m
Including sewer laterals and septic tanks	£622.9m	+£24.1m
Correcting for bias in transformation	£664.1m	+£41.2m
Correcting for 'sewer network length' and 'length of critical sewers'	£701.3m	+£37.2m

Exceptional items

Scottish Water commented that the Commissioner's use in the modelling process of historical expenditure from England and Wales had ignored areas where the situation in Scotland is different. Scottish Water cited differences in 'recent investment and progress, regulatory requirements and asset base'. In support of this argument, Scottish Water provided a number of examples of capital maintenance investment that had not been included in the models.

First time provision

Scottish Water provided more information to support its claim that the allowance for first time provision should reflect the fact that this investment reflected SEPA's environmental priorities.

Unplanned interruptions

Scottish Water stated that the draft determination made no reference to investment required to meet the Ministers' objectives for a reduction in the level of unplanned interruptions to water supply. Scottish Water's

modelling indicated that an additional £76 million was required to deliver this objective. Scottish Water believed that without this investment there would be an increase in unplanned interruptions.

Scottish Water argued that the number of unplanned interruptions in Scotland had improved but still remained considerably worse than in England and Wales. It pointed out that the majority of unplanned interruptions that last longer than 12 hours take place in rural areas where there are no alternative supplies and long travel times.

Scottish Water stated that it cannot meet the Ministers' objectives through operational improvements alone and that it needs to target asbestos cement mains in the north west where, it claims, the majority of its unplanned interruptions occur.

Summary: the minimum changes required by Scottish Water

Section 10.2 of Scottish Water's representations summarised the minimum changes that it considered to be required in the final determination's assessment of the allowed for level of capital investment. The summary is set out in Table 18.3.

Table 18.3: Scottish Water's minimum changes required in the draft determination (capital investment)

Issue	Minimum change required
Faber Maunsell	The Commission should set aside the flawed Faber Maunsell report and rely on the more robust analysis by the Reporter.
Benchmarking for drinking water quality and UIDs	<p>Benchmarking with projects in England and Wales is inappropriate where the scope of the projects being undertaken is materially different from projects in Scotland. For drinking water quality and UIDs, the nature of the projects is such that no conclusion can be drawn from a simple comparison of average scheme costs.</p> <p>Instead the Commission should rely on cost base comparisons, which are designed to compare companies' performance on projects with similar scopes.</p>
Drinking water quality	<p>Any consideration of the potential for reduction in the scope of investment should be based on the analysis of the WIC's Reporter. Although we disagree with the Reporter on some aspects of his conclusions, they are at least logically based and demonstrate a better understanding of the Scottish environment and of our assets.</p> <p>The Commission should note the requirement from DWQR that our assets should be capable of withstanding extreme weather events when it determines the extent of investment required.</p>
UIDs	<p>Both the approaches adopted in the draft determination (Faber Maunsell and benchmarking) to calculating the allowed investment, were fundamentally flawed. The amount of investment proposed in our second draft business plan⁸ should be allowed, in full, in the final determination. We accept, however, that the Meadowhead, Stevenston, Portobello and Greater Glasgow catchments may fall to be treated as "material change items", if the actual outturn is materially different from that amount.</p> <p>In acknowledging that there is considerable uncertainty about the final cost of many of the UID projects in complex catchments, because they have not yet been modelled and analysed, the Commission should ensure that sufficient investment is allowed such that the likelihood of an interim determination being triggered remains small.</p>
Capital maintenance	<p>The appropriate level of capital maintenance investment is set out in our second draft business plan for the four year period 2006-10. If investment falls significantly below this level, service to customers will decline, and we will be storing up problems for the future.</p> <p>If the final determination uses the methodology used in the draft determination, of using econometric models, the Commission should:</p> <ul style="list-style-type: none"> • Use the updated data from the 2004-05 Annual Return; • Allow £24.1m for maintenance of sewer laterals and public septic tanks; • Correct for the £41m error in the use of econometric models to predict capital maintenance; • Allow total costs of £76m to deliver the Minister's objectives on unplanned interruptions; • Allow for all the exceptional items set out in our second draft business plan and in Appendix X2.11 to this response, including asset data and non-household metering; • Reconsider our claims for capital maintenance special factors.
Growth	<p>The costs of alleviating development constraints should be those set out in our second draft business plan. The off-setting allowance for customer contributions must be consistent with the provisions in the forthcoming Reasonable Cost Regulations.</p> <p>The investment for first time provision is required primarily to meet SEPA's environmental requirements, not to meet customers' requests. The full investment will therefore have to be funded by Scottish Water and the final determination should acknowledge this.</p>
Capital efficiency	The assessment of our cost base in the draft determination is flawed and overstates our efficiency gap by £167m. We recommend that the Commission adopts an average efficiency target of 9.5% over the period to 2010.
Early start	The draft determination has omitted the £34m of investment we have planned for 2005-06 from its representation of our proposed required investment. In the Final Determination, this amount should be included in the total that we state we require, and any reductions calculated from that total.
ESWA adjustment	This adjustment is not required, because ESWA relative efficiency is already incorporated within our cost base submission.
WIC18 completion	The final determination should allow £14m (nominal post efficiency) for the completion of investment in the 43 projects started in Q&SII, all contained in WIC18.
Profile of investment	The profile (timing) of the investment shown in the draft determination is unachievable efficiently. The final determination should either recognise that there will be an overhang of about £250m into 2010-11 or beyond, or recognise that the programme cannot be delivered at optimum efficiency.

⁸ As modified in Scottish Water's letter of 2 June 2005, 'WIC 53, Updates to Scottish Water's second draft business plan investment programme'.

Chapter 19:

Other stakeholders' representations

Introduction

In the draft determination, the Commissioner set out his allowance for the capital expenditure required to deliver the 'essential' and 'desirable' ministerial objectives at the lowest reasonable overall cost.

Of the 35 representations on the draft determination that we received, 29 commented on the Commissioner's conclusions on the allowed for level of capital expenditure. Many commented on the overall level of allowed for expenditure. Others provided more specific comments about the Commissioner's assessment of individual components of the investment programme. Representations also covered the Commissioner's analysis of Public Private Partnerships (PPPs), the allowed for level of capital expenditure in relation to the introduction of the licensing framework, and the balance between investment and charge cap increases.

This chapter summarises the representations that we received.

The allowed for level of capital expenditure

In the draft determination, the Commissioner distinguished between capital maintenance expenditure and capital enhancement expenditure in his assessment of Scottish Water's investment programme. He also distinguished, in relation to each, between cost reductions that arise from reducing the scope of the capital programme and those that arise from procurement efficiency.

The Commissioner concluded, that in order to deliver the Ministers' objectives (both essential and desirable) at lowest overall reasonable cost, a capital programme of £2.1 billion should be allowed for. This contrasts with Scottish Water's second draft business plan figure of just under £3.4 billion (not including the overhang from Quality and Standards II).

Eight respondents expressed a general concern about the difference between these two figures. We outline more specific concerns later in the chapter.

The CBI commented:

"... when the divergence between your assumption and Scottish Water's estimates is so large, you will appreciate that this does raise some concerns: that Scottish Water will not have sufficient resources; and there may be an impact on the quality of service it provides."

The Royal Society for the Protection of Birds (RSPB) commented:

"We welcome the WIC's commitment to deliver both the essential and desirable objectives as set out in the Ministerial Statement of February 2005...It is very difficult to understand that two organisations (WIC and SW (Scottish Water)) responsible for costing [the] proposed programme produce estimates of costs which are so different. This would imply that there are serious differences on opinion and understanding of the requirements of the proposed programme."

This concern was echoed by LINK Freshwater Task Force (LINK FTF).

"We welcome WIC's proposals to deliver both the essential and desirable objectives set out in the Ministerial Statement of February 2005. These objectives are necessary to contribute towards meeting the requirements of European environmental regulations. However, we are concerned that the approach taken by the WIC and Scottish Water does not allow for long-term strategic planning. We are concerned that the WIC and Scottish [Water] produced such different estimates of costs for the programme, which perhaps suggests that there is a difference of opinion in what should be delivered under the ministerial objectives."

The Scottish Trades' Unions Congress (STUC), UNISON Scotland, and the Transport and General Workers Union Scotland (T&G Scotland) all commented:¹

¹ A large proportion of the STUC's representation, UNISON Scotland's and T & G Scotland's representation were verbatim. Copies of all representations are available on our website, www.watercommission.co.uk and in Appendix 14.

“Our members on the ground are concerned that the consequences of this reduced scoping will result in water quality failures, unplanned interruptions to water supply and on the waste water side a significant increase in internal flooding, sewer collapse and the risk of pollution. Some of the anticipated asset life estimates implied in the DD (draft determination) are simply not adequate to maintain serviceability.”

Fife Council noted:

“Fife Council is concerned at the extent of variance between the Draft Determination and Scottish Water’s Draft Business Plan and the degree of uncertainty that this implies.”

The Water Customer Consultation Panels (WCCP) commented:

“The Panels have serious concerns about the risk that such a scaled-down programme may pose for customers, particularly should the “efficiency savings” turn out to mean simply adopting a short term fix for an early benefit in charges.”

The Civil Engineering Contractors Association (CECA) noted that that this disparity in the two figures could lead to a *“prolonged period of deliberations and challenges”*. It noted:

“In our experience, any such delays tend to store up problems by requiring a ramped up level of work during the latter part of the Q&SIII programme thereby necessitating a regeneration which invariably leads to increased costs and decreased efficiency.”

Respondents also made general comments about the approach the Commissioner had taken.

Water UK commented:

“...the draft determination provides little transparency to stakeholders as to how the consultant studies were undertaken, whether these

were in turn scrutinised by the Reporter, or how the WIC came to its conclusions on which evidence to weight most highly.”

Water UK went on to suggest:

“... it is clear from the experience in England and Wales that the benchmarking schemes between companies can be fraught with problems. Ofwat’s cost based analysis is beset by such, as recognised inter alia by the Competition Commission and most recently by stakeholders responding to the John Baker review of PR04 [price review 2004].”

The STUC commented:

“Scottish Water’s approach is based on an understanding (albeit not perfect) of real assets and their condition. The WIC’s approach uses econometric models. Recent STUC commissioned research from Glasgow University highlighted the limitations of this approach.”

CECA commented:

“On balance we felt that the Faber Maunsell report may have been preliminary rather than definitive and might benefit from further refinement and additional input on local conditions. Likewise, we were concerned that since the basic infrastructure in England was generally acknowledged as being in better condition than in Scotland the Ofwat benchmarks may have been based on a different maturity of programme and were not comparing like with like.”

The RSPB was also concerned about the Faber Maunsell review:

“We are greatly concerned that the Water Industry Commissioner, in determining charge caps for Scottish Water, took advice from a report by Faber Maunsell, which offered an independent review of Scottish Water’s second draft business plan, and a comprehensive scrutiny of the environmental

programme. Faber Maunsell's report suggests that Scottish Water overestimated the costs of its proposed investment programme by 45% to 55%. However, this report was commissioned over a short period of time, and used a small sample of 43 sewerage treatment works divided into 5 size bands (9 works in each size band), which may not have been representative of the condition of assets within these size bands."

In addition to these general comments, we also received representations on:

- capital maintenance,
- leakage,
- environmental compliance and UIDs,
- water resources,
- drinking water quality, and
- development constraints and first time provision.

We summarise each in turn.

Capital maintenance

In assessing Scottish Water's capital maintenance requirements, the Commissioner took account of Ofwat's four-stage process for assessing the level of capital maintenance to allow for. The Commissioner allowed for total capital maintenance of up to £780 million. Scottish Water had claimed £1,085 million in its second draft business plan. In its first draft business plan it had claimed just over £900 million.

Two respondents commented on the reduction (in cash terms) in capital maintenance.

CECA commented:

"The divergence between the two costings caused genuine alarm in Scotland's civil engineering community not least because under the

Commissioner's figures there would seem to be an effective 20% reduction in capital maintenance spending from current levels at a time when our own site experience on Scottish Water's assets, as compared to those in England, leaves us under no illusions about the comparative state of the assets and the work still needing to be done."

CECA went on to comment:

"Furthermore, we were aware that the Reporter had been working closely with Scottish Water over a long period and understood that the Reporter's assessment had been that the programme could be delivered for a figure closer to Scottish Water's than the Commission[er]'s in the draft determination."

The Scottish Council for Development and Industry (SCDI) echoed CECA's comments:

"SCDI understands from the Scottish civil engineering industry that this gap between the estimates, and what this may mean for the capital investment still required in Scotland's water infrastructure and for workload of the civil engineering industry, is worrying given the volume of work that is still necessary to guarantee appropriate levels of maintenance and the proper performance of Scotland's water and sewerage system. Effectively a 20% reduction in capital maintenance spending from current levels is proposed by the Commission[er]."

Four respondents commented on the possible consequences of perceived under-funding.

The STUC, UNISON Scotland, and T&G Scotland all commented:

"...if insufficient allowance is made for the maintenance of new investment then it will have to be replaced that much earlier. This is precisely what has happened in England, leading to further rounds of investment and associated costs having to be picked up by charge payers."

The WCCP noted:

“It is therefore important that customers are not at risk of a deteriorating service as a result of any potential under-funding. In addition the impact of any serviceability failure could have a more immediate impact in Scotland than in E&W [England and Wales] given the relatively poor asset condition here.”

In his assessment of forward-looking capital maintenance, the Commissioner asked Ofwat independently to assess Scottish Water’s final business plan using the methodology it uses to assess progress in implementing the ‘Capital Maintenance Planning: A common framework’ (CMPCF). This process concluded that Scottish Water’s knowledge of the condition and performance of its assets was poor and did not allow a sound, risk-based approach to capital maintenance planning to be adopted.

Water UK noted its concern about:

“... the apparent failure to take into account any of the forward looking work undertaken by Scottish Water within the common framework approach... the WIC has chosen to place even greater weight on backward looking modelling approaches that themselves have been severely criticised in the past, not only for being backward looking, but also for their questionable robustness.”

The Drinking Water Quality Regulator (DWQR) commented:

“It is disappointing to note your assessment of Scottish Water’s application of UK Water Industry Research’s common framework for capital maintenance planning. Considerable time and effort was expended during the Q&S process in selecting the common framework as the most appropriate method for capital maintenance planning. All parties involved in Q&S, including the WIC, agreed that the common framework was the way forward... I trust therefore that sufficient allowance has been made in your determination to provide Scottish Water with the

necessary resources to address this situation so that future determinations can be made using industry best practice.”

The Commissioner allowed seven exceptional items in his assessment of capital maintenance. One of these exceptional items (exceptional item 3) was to ensure that Scottish Water improved its information and made progress in its use of the CMPCF over the next four years.

SEPA commented that it:

“... is keen to see capital maintenance being funded correctly to ensure that the “no deterioration” level is at least maintained. We welcome and support exceptional items 2 (unplanned maintenance for waste water treatment works), 3 (implement Common Framework Approach for maintenance) and 4 (progress towards economic levels of water supply leakage).”

Leakage

In the draft determination, the Commissioner allowed for additional funding to address leakage. In its business plan, Scottish Water acknowledged that its level of leakage is higher than the economic level. The Commissioner expressed his concern that information about current leakage levels appeared to be unreliable. The exceptional item allowance was designed to ensure that Scottish Water identified its economic level of leakage by 2007 and reached that level by 2014. The Commissioner considered that a more specific target could not be set.

Six respondents commented on this issue.

Stewart Stevenson MSP commented:

“I understand that Scottish Water’s performance is better than that of its southern neighbours, but a failure to set leakage targets gives the impression that Scottish Water is content with the current levels of leakages this shows a lack of ambition.”

SEPA noted that it:

“...attaches high importance to early reduction of Scottish Water’s leakage levels. We support the proposal that Scottish Water should calculate economic levels by 2007 but emphasise that this should be on a water resource zone basis to ensure that efforts can be prioritised and the allocated £40m targeted to zones with deficits resulting from WFD [Water Framework Directive] provisions. It is also important that the assessments of economic level are agreed with the Water Industry Commission and SEPA.”

The Cairngorms National Park Authority wished to emphasise the importance of:

“... the requirement for adequate leakage control and demand management targets to be placed on Scottish Water in order to foster more sustainable use of water resources to increase the reliability of supplies and also minimise adverse environmental impact of abstraction.”

The RSPB commented:

“Leakage of water that has been treated and pumped around the water network represents a waste of energy and resources, and the role of the WIC is to help Scottish Water to tackle this issue under its duty for sustainable development...ignoring this problem will cause problems for future customers by increasing the rate of asset failures as well as the risk of non-compliance with regulatory obligations, resulting in increased environmental and/or financial costs in the next review period.”

LINK FTF commented:

“However, Scotland suffers from a backlog of historic underinvestment in maintaining and replacing assets, a trend which appears to continue today and as the consultation would suggest, into the near future...For example, only £50 million has been allocated by the WICS to actively address the issue of water leakage. This appears to be a wholly inadequate response when compared with the level of investment in England and Wales.”

The WCCP noted:

“... that specific leakage targets have not been set, but that there is a recommendation for SW [Scottish Water] to reduce uncertainties by establishing economic levels of leakage in water resource zones affected by the Water Framework Directive.”

Environmental compliance and UIDs²

Scottish Water’s second draft business plan proposed investment of £845.2 million to meet the environmental objectives set out in the Ministerial Guidance. More than three-quarters of this investment related to 280 schemes to address UIDs.

The Commissioner’s review of the environmental quality investment proposed by Scottish Water indicated that the scope of investment that was included in the programme had significantly inflated the costs of meeting the Ministers’ objectives.

CECA noted that there could be greater scope for efficiencies if the investment period were extended:

“... We felt that it may be for consideration that there could be greater scope for efficiencies to be found (e.g. in UIDs) if the programme were extended to 5 years as it is in England and Wales.”

Eight respondents commented that the level of investment that the Commissioner had allowed was insufficient. The first, wrote to Derek Brownlee, MSP for South of Scotland, to express concerns. He asked us to consider the letter in the consultation process on the draft determination. We also received a further 14³ letters from MSPs reporting their constituents’ concerns on this issue. They shared similar views to those of Mr Brownlee’s constituent:

“As I understand, there is a worrying danger that the WIC may seek to cut back on environmental projects even to the point where legislation is breached.”

² Unsatisfactory intermittent discharges

The other seven respondents commented on the allowance for UIDs specifically.

The GMB Trades Union commented:

“Similar disparities are identified on intermittent discharges wherein WIC claims over scoping of 64-83%. Proposed costs of this magnitude could have a catastrophic impact on the Scottish public.”

The STUC, UNISON Scotland and T&G Scotland all commented:

“... on unsatisfactory intermittent discharges (UID) investment the FM [Faber Maunsell] approach claims a 58% over scoping and the WIC 64-83% based again on benchmarking with England. However, reviews of actual UIDs and even the early costs in England supports the UID expenditure set out in the SWDBP [Scottish Water draft business plan]. The consequences of the massive cuts proposed in the DD [draft determination] could be very serious, particularly for Glasgow, where flooding and Clyde water quality is an important issue.”

Glasgow City Council’s Director of Development and Regeneration Services commented in his response that:

“... the funding of £139 million identified by Scottish Water’s 2nd Draft Business Plan for the UID programme of works within Glasgow, for example, falls considerably short of the level of investment required in the City. Glasgow City Council is concerned, therefore, at the additional reduction of this investment proposed by the Draft Determination, to a sum of between £14 million and £28 million. As has been clearly demonstrated by the Glasgow Strategic Drainage Plan this will fail to make a significant impact on the problems facing the City.”

LINK FTF commented:

“We are especially concerned over cost reduction when dealing with CSOs [combined sewer overflows] and sewage treatment works, which can cause great environmental harm. For example, Glasgow

Strategic Drainage Plan did not even appear as a ‘notified’ project.”

The RSPB also noted its concern over the “reductions imposed” on projects such as the Glasgow Strategic Drainage Plan.

The Commissioner noted in the draft determination that both the Reporter and his independent engineering consultants identified that effective delivery of the UID programme would require detailed modelling to demonstrate the interaction of discharges from the waste water systems and the receiving waters. This was particularly the case for three major catchments that represent a large proportion of the programme.

After consultation with SEPA, the Commissioner allowed a further provision of £6 million for Scottish Water to carry out detailed modelling and study work. The Commissioner considered that it was appropriate to ring-fence investment of £83 million to £167 million, covering the UIDs in the three catchments of Meadowhead, Stevenston and Portobello, until the modelling had been completed.

SEPA commented in its response:

“Serious concerns are expressed in the draft determination regarding the poor data used to identify individual unsatisfactory combined sewer overflows (UIDs in the Scottish Water business plan). Given this, SEPA strongly suggests that all collecting systems in the programme should be dealt with in the same way as suggested in the report for the above catchments. Funding should be ring-fenced for each individual collecting system and the overall solutions should be agreed with SEPA within 18 months of the start of the period. The investigatory work will inform the detailed programme of work required within each catchment. This approach will ensure that funding is targeted to achieve the Ministerial objectives. Such a strategic approach also has the potential of enhancing the cost-effectiveness of investment by incorporating a range of other benefits such as addressing development constraints and sewer flooding.”

³ As at 31 October 2005

Lands Improvement Holdings plc noted:

“We welcome the allowance of £6 million for Scottish Water to carry out detailed modelling work and study work to identify optimum catchment solutions. We note that Meadowhead is one of the proposed catchments for study. However, it would be most useful for the Commissioner or the Executive to set out tight timescales for the production of these reports, particularly if investment in the study areas may only be committed after these studies have been completed and agreed.”

The WCCP noted:

“The key to ascertaining the “correct” investment level for wastewater infrastructure lies in gaining better data through modelling. WCCP support the concept of funding sufficient modelling to get the investment level right, if necessary later in the Q&S3 period, to ensure investment funds are not used wastefully at customers’ expense.”

Two further representations were made about the Commissioner’s conclusions on the level of environmental investment required.

The RSPB commented:

“We are disappointed by the lack of recognition of environmental benefits to be gained from this investment programme to Scottish Water’s customers, including the direct and indirect benefits of an enhanced environment and non-use benefits such as intrinsic value.”

The WCCP commented:

“It is not clear to WCCP how much allowance had been made by WIC for sustainability obligations in the course of carrying out the Draft Determination.”

Water resources

Following the review by the Reporter and the engineering consultants of this element of the

investment programme, the Commissioner concluded that there was considerable uncertainty about costs in this area and that there was a danger that customers’ money would not be spent wisely.

SEPA commented:

“We accept the view that water resources costs are uncertain and we are committed to working with the Water Industry Commission, Scottish Water and the Scottish Executive to develop procedures for managing the programme and improving the level of detail. This will ensure that the Minister’s objectives can be delivered within the reduced capital budgets.”

Drinking water quality

The Commissioner considered the conclusions of the Reporter and Faber Maunsell in his assessment of planned investment on drinking water quality. He considered that there was considerable evidence to suggest that the investment required to meet the ministerial objectives had been scoped incorrectly.

The DWQR noted of Faber Maunsell’s review:

“I am concerned that if the final determination on investment at water treatment works is based on a flawed assessment of need, then there is a risk that in attempting to comply with Ministerial Objectives, Scottish Water will adopt solutions that are not robust.”

However, the DWQR went on to note:

“Adopting a similar approach to that used in the draft determination, and taking an average of the Reporter’s and the revised Faber Maunsell figures, it would suggest than an appropriate reduction in Scottish Water’s cost estimate for investment at water treatment works is of the order of 24%. Such a reduction might be justified on the grounds of the over-scoping and lack of strategic thinking identified by the Reporters and Faber Maunsell.”

Five other respondents also expressed their concern about the size of the Commissioner's proposed reduction:

The GMB noted:

"We now see a similar approach identified in the massive variance in over scoping in drinking water where the reporter identifies a range of 14-15% but the WIC's preferred figure (Faber Maunsell) was 45-55%."

The STUC, UNISON Scotland and T&G Scotland all noted:

"... we note that the reporter reached a view that the degree of over scoping was in the range 14-15%. The WIC then commissioned a further review from Faber Maunsell (FM) that claims the over scoping was in the range 45-55%. Our position is that the reporter's view is at the extreme of achievable scoping reductions. We are aware of a number of concerns over the FM approach and would welcome independent analysis of that report."

The WCCP commented that they:

"... wish to ensure that customers are not placed at increased risk of either a serious water quality incident or of ongoing inferior water problems through insufficient funding."

Development constraints and first time provision

Ministers set an objective that sufficient strategic capacity should be made available to accommodate 60,000 new homes (in previously development constrained areas) and 2,025 hectares of new commercial land to be connected to the public water and waste water networks.

Costs in this area were split into 'Part 3' (local network reinforcement costs associated with new development)

and 'Part 4' (assets such as treatment works and water sources).

The Commissioner noted that the Scottish Executive would consult on regulations in line with the requirements set out in the Water Environment and Water Services Act 2003. These regulations were expected to require Scottish Water to be responsible for funding all Part 4 costs and making a 'reasonable cost' contribution to Part 3 costs.

The WCCP noted that:

"The outcome of this consultation is of course not yet known, but will have an impact on the final determination."

Lands Improvement Holdings plc noted of the proposals:

"We believe, therefore, that there should be flexibility in the financial settlement to more effectively facilitate the release of development constraints. In local circumstances, there should be the ability for the Executive's Capital Monitoring Group to allow 'strategic' expenditure on Part 3 assets, rather than solely on Part 4 assets, in order to meet the objectives on the development constraint set out in the Ministerial Statement."

Following his review of Scottish Water's second draft business plan, the Reporter concluded that Scottish Water's estimates of the nature and cost of resolving development constraints were very uncertain. The Commissioner accepted the Reporter's conclusions.

SEPA commented on one of these conclusions:

"We support the conclusion that water demand for new developments has been over-estimated, and the potential for leakage reduction not fully exploited. We are committed to working with both Scottish Water and yourselves to ensure that the forthcoming Water Resource Plan improves these estimates."

In his assessment of the estimated cost of releasing development constraints, the Commissioner did not seek to challenge Scottish Water's assumptions on the extent to which reasonable cost contributions for Part 3 assets should be required.

Based on the comments provided by the Reporter and the independent engineering consultants the Commissioner considered that the allowance for Part 4 costs should be reduced by between 15% and 25%. He also reduced the provision for first time connections to the sewerage system in line with the review by the Reporter and the independent engineering consultants.

Three respondents commented on the Commissioner's proposals:

The SCDI commented:

"Again, the Draft Determination has slashed the proposed investment by Scottish Water for £221 million for new network capacity set out in its second draft business plan to a maximum of £193 million. For first time provision, it requires the level of investment to be cut from a proposed £70 million to a maximum £62 million. SCDI would be very concerned if cuts of this magnitude were responsible for impacting on Scottish Water's ability to address the development constraints and first time connections issue."

The WCCP commented:

"WIC will be well aware that release of development is a major priority for the Scottish economy and for developers. Given this, along with uncertainties surrounding SW [Scottish Water's] asset performance, and uncertainty about infrastructure charges and other development related issues, WCCP would ask again for reassurance about the scope of these reductions."

SEPA noted that it:

"... strongly welcomes the allocation made for first time sewerage provision to ease most significant water quality issues related to this area."

Six respondents commented on how the proposed allowed level of investment for development constraints should be allocated.

The Federation of Small Businesses (FSB) noted:

"... we are pleased that the Minister has accepted the need for increased investment in this area. We remain concerned about how priorities for investment will be determined and are particularly keen that the investment in infrastructure for commercial development addresses the needs of small businesses and not just larger developments. Concerns remain, however, about the efficiency of investment, particularly in relation to building in additional capacity when replacing infrastructure and ensuring that new infrastructure is fit for purpose and offers value for money."

Fife Council commented:

"Delivery of the Q&SIII programme is fundamental to the achievement of the Development Plan aims and regeneration agenda in Fife. Alleviating development constraints and providing confidence in the delivery of Scottish Water's proposed investment programme is strongly supported... Fife Council remains concerned about the scale of the development constraints that remain to be addressed in Q&SIII and the timescales for delivery of Scottish Water's investment programme."

Dalbeattie Community Council commented:

"...we strongly believe that Dalbeattie should be considered a priority case for having our waste water treatment plant updated so that capacity is increased and thus reverse the current constraint on our development."

Glasgow City Council commented:

“It is essential that the City secures a significant proportion of such investment as a reflection of its significance as the main economic driver for the whole of the West of Scotland area.”

Perth and Kinross Council commented:

“It is recognised that the bulk of the Scottish population is concentrated within this area [Central Scotland], however, it is essential that the severe water services constraints in the rest of Scotland receive an adequate and equitable share of the investment.”

Cairngorms National Park Authority commented that it:

“... would welcome involvement in the discussion between Scottish Water, SEPA and the local authorities in our area on the specifics.”

Public Private Partnerships

In its investment plan, Scottish Water included capital investment at PPP waste water treatment schemes. The Commissioner concluded that additional outputs at PPP sites should be funded through PPP with a contract amendment, if necessary.

Aberdeen Environmental Services Limited (AES) which operates the Aberdeen PPP on behalf of Scottish Water commented:

“Generally speaking, additional investment may be needed to meet a new legislative obligation not known at the time the contract was negotiated and would therefore be the responsibility of Scottish Water. This is no different from the position under a non PPP arrangement. Other investment necessary to treat, for example, additional load discharged as a result of SW’s [Scottish Water’s] trade effluent charging regimes, or because historical neglect of the transferred plant or investment needed to improve the efficiency of the plant is the responsibility of the contractor.”

Catchment, which own and operate three of Scottish Water’s nine PPP schemes commented:

“Catchment is not aware of any additional investment proposed by Scottish Water at any of the three Catchment schemes due to a lack of capital maintenance. Capital maintenance risk, the risk of additional capital works required to accommodate future demand growth within the concession areas whilst continuing to meet the specified performance standards, are all risk transferred to the PPP contractor under the concession agreements.”

The Commissioner also explored the value for money provided to Scottish Water’s customers from PPP. He assessed the likely equity return on the PPP contracts.

Five PPP contractors commented on this calculation. All believed that the approach was flawed. These explanations are detailed and we would refer readers to the complete representations in Appendix 14.

Establishment of a retail entity

In the draft determination, the Commissioner assessed the likely capital costs that Scottish Water would incur in order to form a separate retail entity. Four respondents commented on his assessment.

The STUC, UNISON Scotland and T&G Scotland all commented:

“For the new licensed retail business almost no internal preparation or restructuring costs have been allowed. Other additional costs have been reduced.”

The WCCP noted:

“WIC allows some £12.7m to fund SW [Scottish Water] for retail competition to 2010... Without a full understanding of the position it is difficult to comment meaningfully. However, WCCP are extremely concerned to ensure that retail competition is introduced in an orderly way, causing minimum confusion and frustration to business customers.”

The relationship between customer charges and investment

The Commissioner explained that he believed he had allowed for capital expenditure which would deliver the ministerial objectives at the lowest overall reasonable cost. He explained that he then translated the total revenue required to deliver these objectives into charge caps.

Seven respondents expressed concern that the proposed profile of charge caps in the draft determination should not be achieved at the expense of necessary investment.

Glasgow City Council noted:

“While such a reduction in charges is to be welcomed, there remain some concerns as to whether the overall investment programme to be supported by such changes is sufficient, particularly given, for example, the scale of the development constraints removal programme to be addressed in Glasgow, and anticipated competing priorities for such funding allocations across Scotland.”

A concerned constituent of Derek Brownlee MSP commented:

“Under investment in the water industry in Scotland has for too long been the order of the day. It is high time to put an end to it. I would willingly pay a bit extra on my water bill in an effort to finance improvements.”

Orkney Islands Council commented:

“Reduction by Scottish Water of the rate payable for services to business by over 2% is welcomed, but concern has been expressed that this should not be at the expense of either under investment on infrastructure or significant cutbacks in the provision of services.”

The RSPB commented:

“We are concerned by the WIC’s proposals to deliver

all the objectives at a rate of water charge increase, which will be 4% below the inflation rate. Scottish Customers will enjoy the third lowest water charges in the UK by 2010, but at a price of continuously high leakage rates, burst pipes and bad environmental/economic performance... The Quality and Standards III consultation process showed that customers are prepared to play a little bit extra to achieve a better environment and more sustainable water resources.”

LINK FTF commented:

“It is important to highlight that even with the proposed investment programme, Scottish Water will still have the worst leakage rates in the UK as well as the worst state of assets, yet water charges will still be the third lowest in the UK.”

The WCCP commented:

“The Water Industry Commissioner’s (WIC’s) Draft Determination appears to represent a reasonable deal for customers. However, WCCP are concerned that the gap between the WIC calculations presented in the Draft Determination and those in SW’s [Scottish Water’s] Second Draft Business Plan is enormous. It is apparent that the Draft Determination has had to be made against a backdrop of considerable uncertainty and therefore risk for SW and its customers.”

SEPA commented:

“SEPA remains concerned that customer charges will not increase... Indeed, it is noted that the Water Industry Commission[er] predicts charges may even fall in real terms within the period 2010-14. This goes against the trend in England and Wales and is not consistent with outstanding EU obligations.”

Two respondents expressed concern that charges should not increase unnecessarily.

The Scotch Whisky Association commented:

“It is assumed that the charges may also be affected

in future by the uncertain impact of the Water Framework Directive (WFD)... The Association is unsure how the Commission[er] has approached this uncertainty within the draft determination, but hopes that unnecessary impacts on Scottish Water's prices can be resisted over the review period."

The FSB noted:

"Whilst the revenue total proposed by the WICS will present a challenge to Scottish Water, this has been the case in the past and Scottish Water has risen to the challenge. The FSB considers that any increase to this [the] limits would lead to unacceptable increases in customer bills, and would urge the Commission to stick with the proposed revenue limits."

Summary

We received many representations on the Commissioner's conclusions in the area of capital investment. The difference between the Commissioner's allowed for level of capital expenditure and that proposed by Scottish Water in its second draft business plan proved contentious. Some respondents questioned the approach the Commissioner had used and the conclusions of the independent engineering consultants. Some representations referred to specific elements of the investment programme and the Commissioner's assessment of them. Again, concerns were expressed about the difference between the Commissioner's assessment and that of Scottish Water.

Many respondents commented on the profile of charge caps proposed by the Commissioner. They expressed concern that a profile of stable charges should not be achieved at the expense of necessary investment.

Chapter 20:

Our conclusions

Introduction

The capital investment programme accounts for around half of Scottish Water's total expenditure. In the draft determination, the Water Industry Commissioner set out in detail the capital programme that he allowed for to meet the 'essential' and 'desirable' objectives of the Scottish Ministers. At around £525 million a year¹, this represented a very large capital programme in terms of cost.

The Scottish Ministers have set out clear objectives² to improve water quality, environmental performance and customer service in the water industry in Scotland. Meeting these objectives will require substantial investment to maintain the performance of existing assets, provide new treatment processes for both water and waste water and remove constraints on development. We, the new Commission, consider that it is essential that customers pay no more than is necessary to receive the improvements in public health, the environment, the level of customer service and economic growth (the result of alleviating development constraints) that the Scottish Ministers have specified.

We reviewed the proposals that were set out in the draft determination and the new information that may become available since its publication. We have also taken account of stakeholders' representations. In particular, we have looked carefully at why there was such a large gap between the funding to meet the objectives set by the Scottish Ministers³ that Scottish Water sought and that which was allowed for by the Commissioner.

In this chapter we set out our conclusions on the level of capital investment that we should allow for. In reaching these conclusions, we have had regard to the following principles.

- **Deliverability:** we have ensured that Scottish Water is resourced to carry out the strategic studies that will ensure that ministerial objectives can be delivered in a timely and cost-effective way. We also considered the mix and type of projects that Scottish Water is required to deliver and compared this to the investment programmes that are delivered successfully in England and Wales.
- **Reasonable cost⁴:** we noted the capital unit costs that have been achieved by the companies south of the border and the conclusions of the Commissioner's consultants. We have taken account of Scottish Water's current performance in many areas. As such, we allowed for a higher level of spend than would have been justified based on our analysis of performance of the industry south of the border. We consider that allowing for an even higher level of spend would not have been consistent with our duty to set charges that are consistent with the lowest reasonable overall cost of delivering the ministerial objectives.

It is important to understand the nature of an average unit cost. Delivery of a unit may cost more or less than the average unit cost. Delivery of a single project below this average unit cost does not necessarily suggest that Scottish Water is efficient, nor is it indicative of outperformance. Likewise, delivery of a single project above the allowed for unit cost does not suggest that Scottish Water is inefficient. We will judge the efficiency of Scottish Water based on its performance in delivering all the ministerial objectives within the charge caps.

- **Minimising whole life costs:** we noted the comments of the Drinking Water Quality Regulator (DWQR), the Reporter and Faber Maunsell that

¹ The Commissioner identified a highest estimated investment programme cost of £2,215.6 million and a current lowest realistic cost of £1,736.2 million. For calculating the impact on prices, the Commissioner established through risk analysis that there was less than a 2% chance that the required capital programme would exceed £2,100 million, equivalent to £525 million a year. All in 2003-04 prices.

² Ministerial statement on water services in Scotland, 9 February 2005 by the Deputy Minister, Lewis MacDonald MSP.

³ In its representations on the draft determination, Scottish Water reaffirmed the position set out in its second draft business plan that capital investment of some £3.4 billion is required for 2006-10 to meet the ministerial objectives.

⁴ At various points in this chapter we will refer to the need for computer models to be constructed to determine the exact nature of the work necessary to deliver the Ministerial Objectives. We have also noted that increases in work arising from these studies could be a valid reason for an interim determination application. The Commission feels that it should make clear that this in no way represents a relaxation of the hard financial constraints that have been referred to in earlier chapters. In the event that strategies or computer models demonstrate that the physical number of sites requiring work has increased that might be a valid basis. However, if it is the unit cost that has increased such an application would be unlikely to succeed. In accounting terminology, interim determinations would be appropriate for "Volume Variances" but not for "Price Variances".

improvements in operational practice could make a contribution to the achievement of the ministerial objectives. As we discussed in Chapter 14, we allowed for additional operating costs to ensure that Scottish Water does not feel constrained by operating cost targets to adopt a higher cost capital investment solution to meeting the ministerial objectives.

- **Best Value Delivery:** we believe that Scottish Water must continually seek out the most cost-effective way to deliver the capital investment programme.
- **Maintaining momentum:** we consider that Scottish Water must maintain momentum in its progress towards achieving the ministerial objectives. Many of the objectives (and indeed the overhang from Quality and Standards II) can be delivered quickly without compromising either their effectiveness or their efficiency. We do not believe that our comments on the need for a strategic approach or other external events can reasonably be used as an excuse for a delay in achieving the ministerial objectives.

It is important to emphasise that our allowed for level of operating costs and capital expenditure takes account of the likely scope for improved operational practice. Better performance in operating the assets will help to reduce the incidence of water quality failures, environmental incidents and poor customer service. As such, we believe that our allowed for capital expenditure is consistent with the lowest reasonable overall cost of delivering the ministerial objectives. Our allowances for operating costs and capital expenditure should be considered together in providing Scottish Water with at least sufficient resources to deliver ministerial objectives at lowest reasonable overall cost.

Scottish Water's proposed capital programme

In its second draft business plan, Scottish Water set out its proposed investment programme for 2006-10. Table C of the plan contained a project-level breakdown of the programme required to meet Ministers' 'essential' and 'desirable' objectives. Scottish Water claimed that it would need some £3.4 billion of capital expenditure during the four-year regulatory control period (or around £840 million a year). This would be equivalent to approximately £340 each year for every connected property.

On 2 June 2005, Scottish Water submitted⁵ a revised Table C investment programme covering both the 'essential' and 'desirable' investment objectives. It also submitted another version of the table which covered only the 'essential' objectives.

The changes in the main elements of the programme are summarised in Table 20.1. We discussed the changes in detail in Chapter 17. In the draft determination we did not include Scottish Water's claim for £36 million for 'early start' investment. To allow comparison with the final determination, we provide figures for Scottish Water's second draft business plan with and without the early start investment.

Table 20.1: Scottish Water's 2006-10 investment programme (2003-04 prices)

	Second draft business plan, Apr-05	Second draft business plan, Apr-05, including early start	Revised Table C submission, Jun-05, including early start
Maintaining current water and waste water services (capital maintenance)	£1,085m	£1,110m	£1,068m
Drinking water quality and resource enhancements	£1,064m	£1,070m	£1,074m
Environmental quality enhancements	£845m	£847m	£750m
Customer service improvements	£84m	£86m	£170m
Development constraints and growth	£221m	£222m	£224m
First time provision	£70m	£70m	£70m
Total Quality and Standards III (essential and desirable)	£3,369m	£3,406m	£3,356m

The required expenditure on capital maintenance in the second draft business plan included the cost of reducing the number of properties that experience an unplanned interruption. The revised Table C separated out this cost and added it to customer service improvements. This largely explains the increase in investment in improving customer service. The underlying level of capital maintenance increases further (it was £912 million in the first draft business plan). This increase is offset by a decrease in the level of investment claimed to be required to meet the ministerial objectives for the environment. There is a small overall reduction of just over £40 million.

⁵ Letter from Scottish Water Asset Management Director dated 2 June 2005 to the Water Industry Commissioner.

The overall programme cost has not changed significantly, but there are a number of changes in the detail of the two investment programmes. For example, Scottish Water removed some errors in its programme and revised the cost of many unsatisfactory intermittent discharges (UIDs) projects. These changes have an impact on our assessment of the scope for efficiency.

In our analysis for this final determination we used Scottish Water's revised Table C submission of 2 June 2005. This represents the most recent definition of Scottish Water's capital investment proposals for 2006-10.

Scottish Water's representations used costs that were adjusted by its own assessment of the scope for efficiency. We are not fully clear about how Scottish Water calculated the scope for efficiency. Scottish Water's approach has made it significantly more complicated to compare the information provided in the two Table C submissions and its representations.

In this chapter we will state whether we are using numbers from the revised Table C submission or our post-efficiency values. Unless otherwise stated, all costs will be in 2003-04 prices.

Early start investment

Scottish Water's representations stated that its 'early start' costs had not been included in the Commissioner's assessment of allowed for capital expenditure. It noted that some £36.4 million of projects⁶ in 2005-06 related to early start. These projects included initial feasibility and design work for Quality and Standards III projects so that work could start promptly in the next regulatory control period. The proposed investment is included in Scottish Water's Table C submission as expenditure in 2005-06.

We accepted Scottish Water's representations on early start. We included an allowance of £23 million early start investment in our analysis of the allowed for capital expenditure to meet the ministerial objectives.

In determining the phasing of the early start investment, we noted that the Minister has set⁷ a maximum spend for Scottish Water on early start in 2005-06 of £23 million. We therefore limited the Quality and Standards III investment in 2005-06 to this amount.

The impact of this reduction in cash terms is relatively minor because a large proportion of Scottish Water's early start investment relates to capital maintenance, for which the Commissioner made a full allowance. The Commissioner's approach was to assess the overall level of capital maintenance required; he did not consider the timing of individual projects. Nearly 70% of the proposed early start investment relates to capital maintenance projects which should be funded from the allowed for level of capital maintenance.

Assessment of Scottish Water's capital maintenance investment requirements

We reviewed representations from Scottish Water and other stakeholders on the level of capital maintenance funding that was allowed for in the draft determination. We also reviewed the methodology that was applied in the draft determination to determine the lowest reasonable cost for delivering the Ministers' objective of maintaining service standards for customers across Scotland.

Review of the draft determination

In the draft determination, the Commissioner assessed Scottish Water's capital maintenance requirement at between £647 million and £780 million. The Commissioner was unable to review the capital maintenance programme in the way he had intended because Scottish Water did not provide the level of detail that was specified in the guidance for the second draft business plan.

The Commissioner therefore assessed the baseline level of capital maintenance investment using Ofwat's capital maintenance econometric models. He established a range for the allowed for level of capital maintenance

⁶ Based on Scottish Water's proposed investment for 2005-06 in its revised Table C submission of 2 June 2005.

⁷ Letter of 22 April 2005 from the Deputy Minister for Environment and Rural Development, Lewis MacDonald MSP, to the Chairman of Scottish Water, Professor Alan Alexander.

which, in his view, would be at least sufficient for a reasonably efficient – but not leading – company to maintain the serviceability to customers of Scottish Water’s assets.

The Commissioner also added allowances for ‘exceptional items’, which reflected obvious areas for improvement.

As part of his assessment, the Commissioner asked Ofwat to carry out an analysis of Scottish Water’s application of the UKWIR common framework⁸. Ofwat used information from Scottish Water’s second draft business plan to make its assessment. At the 2004 price review, Ofwat allowed for an increased level of capital maintenance where there was evidence that the UKWIR common framework had been implemented in a rigorous way. Scottish Water would not have earned an additional allowance for capital maintenance on the same basis.

Review of Scottish Water’s representations

We summarised Scottish Water’s representations to the draft determination in Chapter 18. These representations included an analysis by NERA⁹ of the Commissioner’s application of Ofwat’s capital maintenance models and three reports for Scottish Water by engineering consultants MWH UK Ltd. These documents covered:

- the scoring of Scottish Water’s application of the UKWIR common framework¹⁰;
- an assessment of the exceptional items that Scottish Water should claim¹¹; and
- the Commissioner’s use of Ofwat’s four-stage approach¹².

We examined all of this information carefully.

Historic baseline of capital maintenance investment

We are not persuaded by Scottish Water’s assertion that spending on capital maintenance in the current regulatory control period exceeds £900 million. Analysis of Scottish Water’s annual regulatory returns and its latest investment projections for 2005-06 indicate a significantly lower figure. Indeed, analysis of annual return information indicates that the average annual capital maintenance investment over the last five years (2000-01 to 2004-05) is £194 million¹³. This level of spending would imply that the baseline at this Strategic Review of Charges for the allowed for level of capital maintenance should be under £800 million. This baseline would be before we take account of the scope for improved efficiency during the forthcoming regulatory control period.

Application of Ofwat’s econometric models

We do not accept Scottish Water’s assertion that the Commissioner’s use of Ofwat’s capital maintenance econometric models was flawed. In particular, we are not persuaded by Scottish Water’s argument that we should make an additional allowance to the assessed level of capital maintenance to remove bias¹⁴ in the modelled estimate of the required level of capital maintenance. In our view, an adjustment to a modelled answer is only justified when there is a demonstrable reason to believe that the modelled answer has not taken sufficient account of Scottish Water’s specific situation.

Application of UKWIR’s common framework and Ofwat’s four-stage approach

Scottish Water asserted that Ofwat’s scoring of its application of the UKWIR common framework was unduly harsh and had not taken account of all of the information that Scottish Water uses. Scottish Water submitted a report by engineering consultants MWH UK Ltd that

⁸ Industry standard, forward looking, risk based approach to capital maintenance planning.

⁹ NERA ‘An Analysis of the WIC’s Approach to Capital Maintenance Modelling – Scottish Water’, September 2005.

¹⁰ MWH UK Ltd, ‘Scottish Water Q&S III programme: Independent review of capital maintenance investment planning’, September 2005.

¹¹ MWH UK Ltd, ‘Scottish Water Q&S III programme: Review of potential exceptional items of capital maintenance’, final draft, October 2005.

¹² MWH UK Ltd, ‘Scottish Water response to WICS’ draft determination, Application of Ofwat’s 4 stage approach’, final draft, October 2005.

¹³ From Scottish Water’s Annual Return submissions in 2003-04 prices.

¹⁴ Scottish Water describe this bias as being due the ‘Jensen inequality’ which relates to the transformation of the econometric equations into their non-linear form. See Scottish Water’s representations of September 2005 section 2.8.5.

attempts to replicate Ofwat's scoring, but uses additional information from Scottish Water and the Reporter.

Ofwat's assessment of Scottish Water's use of the common framework was based on the information contained in Scottish Water's second draft business plan. The Reporter had not finished his assessment of the second draft business plan and consequently his comments were not available to Ofwat when it completed its analysis.

We recognise that in its 2004 price review Ofwat had access to more information to assess the companies' application of the common framework. We also note that Scottish Water's consultants conclude that Scottish Water should merit a higher score than that in Ofwat's original assessment. The consultants believe that this score should be one grade higher for 'non-infrastructure' and two grades higher for 'infrastructure' and 'management and general'.

Scottish Water's consultants carried out an evaluation of the overall allowance for capital investment in the draft determination and compared this with what they considered Ofwat would have allowed for. Their assessment seeks to replicate Ofwat's four-stage approach. The consultants' report considers 11 different scenarios to estimate capital maintenance requirements and concludes:

"...if WIC accepts the use of the CMPCF but removes his exceptional items, the overall allowed investment level may reduce."

We note this assessment with interest. It suggests that the level of investment allowed for in the draft determination may have been generous, relative to what Ofwat would have allowed the companies. We return to this point later.

Exceptional items

We reviewed Scottish Water's representations concerning the exceptional items that it believes we should allow for in the final determination. Scottish Water claims a pre-efficiency total of £173.6 million. We accepted Scottish Water's claim for some of these items, but in some cases

consider that a reasonable allowance would be lower. In particular, we have taken account of a number of cost estimates provided by MWH UK Ltd in its report for Scottish Water. We also accepted Scottish Water's claims for additional allowances for sewer laterals and we have taken account of new information about sewer and critical sewer length. Both of these factors were highlighted in NERA's analysis for Scottish Water. However, we have made our own assessment of the impact of these factors.

Table 20.2 sets out Scottish Water's claims for exceptional items and our conclusions.

Table 20.2: Our response to Scottish Water's claim for exceptional items

Item	Scottish Water's claim (pre-efficiency)	MWH cost estimate (pre-efficiency)	Our allowance (pre-efficiency)	Our allowance (post-efficiency)
New information on sewer and critical sewer length	£37.2m	N/a ¹⁵	£32.2m	£32.2m
Sewer laterals	£24.1m	£14.6m	£14.6m	£11.5m
District Meter Area establishment	£17.3m	£16.4m	Included in our allowance for leakage	Included in our allowance for leakage
Cryptosporidium fixed sampling equipment	£0.1m	No claim	£0.1m	£0.1m
Dual manholes and Buchan traps	£0.5m	£1.95m	£0.5m	£0.4m
Overlap with quality programme	£97.8m	No claim	Inadequate justification provided	Inadequate justification provided
DOMS ¹⁶ investigations	£8.3m	£8.0m	Included in benchmarked operating costs	Included in benchmarked operating costs
Trunk main investigations	£4.9m	£4.0m	£4.0m	£3.2m
Invercarnie Old Aqueduct	£11.3m	£10.7m	£10.7m	£8.5m
Dams and reservoirs	£5.9m	£5.0m	£5.0m	£4.0m
Asset information	£27.5m	£79.9m	Included in progress to common framework	Included in progress to common framework
Outfalls	-	£1.7m	£1.7m	£1.30
Total	£234.9m	£142.3m	£68.8m	£61.2m

¹⁵ Outside scope of report by MWH.

¹⁶ Distribution Operation and Maintenance strategies.

Additional allowances

We reviewed the additional allowances for capital maintenance that the Commissioner made in his draft determination. We discussed these allowances with the DWQR and with the Scottish Environment Protection Agency (SEPA).

We considered carefully the concerns raised by SEPA about maintenance of pumping stations and the sewerage system in general. In the light of these concerns we believe that the Commissioner's allowance in the draft determination of £20 million was appropriate. We believe that Scottish Water should consult with SEPA about how best to allocate these funds.

We believe that it is not in the interests either of customers or of the environment that Scottish Water continues to tolerate leakage at a level that is higher than an economic level. We therefore included the Commissioner's allowance of £40 million to make progress towards economic levels of leakage. In coming to this conclusion, we noted SEPA's support for progress in this area. We also agree with the Commissioner that Scottish Water is now fully resourced to identify its economic level of leakage at a water resource zone level by December 2007.

We consider that Scottish Water should seek to agree the priority areas for reducing leakage with SEPA and DWQR. We consider that it may be reasonable to have narrowed 50% of the gap between current performance and the economic level of leakage by 2010, and that Scottish Water should endeavour to reach its economic level of leakage by 2014.

We continued to include the allowance for iron and manganese reduction in our overall allowance for capital maintenance. We noted the concerns of the DWQR that this investment does not get lost in the overall capital maintenance budgets. We consider that this issue is likely to be best addressed in the detailed definition of the investment programme.

We decided to reduce the allowance for additional capital maintenance of water infrastructure and non-

infrastructure to £10 million. This reflects the increased allowance for investment in improving water treatment and the increased allowance for operating costs. We would expect that Scottish Water could make further progress in improving its water mains with this allowance. It would, for example, be sufficient to replace a further 114 kilometres of water main¹⁷.

We decided to maintain the Commissioner's allowance for progress towards the application of the common framework at £15 million. We consider that the benchmarked baseline for capital maintenance would normally include most of these costs.

We have re-allocated metering costs to the quality programme to ensure that there is transparency in relation to the costs and required outcomes in this area.

We did not agree with the Commissioner's allowance for the 'overlap of capital maintenance with the quality programme'. We are not persuaded by the argument that the allowed for expenditure is not at least sufficient to deliver Ministerial objectives.

Assessing a reasonable level of capital maintenance investment

In its second draft business plan, Scottish Water highlighted that its knowledge of its asset base is poor. We note that Scottish Water has not provided us with a detailed justification of the additional capital maintenance that it claims to need relative to the investment that it has made in the past. There is therefore a risk that an increased allowance for capital maintenance would not be spent effectively.

In our view, there is little evidence to suggest that a significant increase in the level of capital investment (in cash terms) is required to maintain the serviceability of assets to customers. There is clearly scope for improved procurement efficiency and this alone should result in improved performance relative to the current regulatory control period.

We agree that Scottish Water has to make significant progress in improving its knowledge of its asset base and should seek to demonstrate consistent and effective use

¹⁷ Based on Scottish Water's average costs for water mains renewal, contained in their representations of investment required for unplanned interruptions, of £87.6 per metre (pre-efficiency).

of the common framework. However, at the current time, we believe that the balance of the available evidence suggests that there is no clear justification for an increase in the allowed for capital maintenance beyond that which the Commissioner allowed for in his draft determination. An allowance of approximately this magnitude should be more than sufficient to maintain the serviceability of assets to customers over the 2006-10 period.

We wanted to review our conclusions on the appropriate allowed for level of capital maintenance by considering alternative high-level analytical approaches. We considered that, in view of the apparent gaps and uncertainties in the information available to us from Scottish Water, we should check that our initial assessment was consistent with these alternative approaches. We therefore examined the results of six different methods in coming to our conclusions on an allowed for level of capital maintenance.

Method 1 Using the draft determination approach, reassessing the baseline to include new information on sewer length, and reassessing the exceptional items allowed for by the Commissioner.

Method 2 As Method 1, using the lowest estimated cost of the allowed for exceptional items.

Method 3 As Method 1, but reassessing the exceptional items allowed for by the Commissioner and making further allowances based on our assessment of Scottish Water's representations.

Method 4 Developing the approach adopted by NERA in its report for Scottish Water, allowing all Scottish Water's claimed exceptional items and Scottish Water's suggested efficiency target¹⁸, with no further challenge.

Method 5 Using Scottish Water's reported capital maintenance expenditure for the last five years to assess the baseline and allowing Scottish Water's full claim for exceptional items and applying Scottish Water's suggested efficiency challenge.

Method 6 A high level assessment that takes Scottish Water's total claim for capital maintenance investment and applies an efficiency challenge consistent with our cost base efficiency analysis.

¹⁸ In its second draft business plan, Scottish Water proposed efficiencies of 7.9% by 2005-06, rising to 17.4% by 2009-10, if the capital investment programme were limited to less than £590 million a year.

Table 20.3 outlines the results of these six different approaches.

Table 20.3: Comparison of capital maintenance allowance from five different high level approaches

	Method 1	Method 2	Method 3 (preferred approach)	Method 4	Method 5	Method 6
Approach						
Baseline ¹⁹	Draft determination econometrics	Draft determination econometrics	Draft determination econometrics	NERA econometrics, less sewer laterals ²⁰	Reported expenditure for last five years	Scottish Water's total claim
Exceptional items	Draft determination items, reassessed	Draft determination lowest estimated cost	Method 1 plus assessment of Scottish Water's new claim	Method 1 plus assessment of Scottish Water's new claim	Scottish Water's full claim	None
Efficiencies	Draft determination phased cost base	Draft determination phased cost base	Draft determination phased cost base	None	Scottish Water's proposed efficiencies	Cost base, not phased
Result						
Efficient baseline	£617.8m	£617.8m	£617.8m	£677.2m	–	–
Estimated baseline at Scottish Water's level of efficiency	£746.2m	£746.2m	£746.2m	–	£775.6m	£1042.6m
Allowed exceptional items	£102.2m	£94.7m	£131.4m	£131.2m	£173.6m	Full claim included in baseline
Efficiency challenge	-£77.0m	-£77.0m	-£77.0m	None	-£132.4m	-£213.5m
Total	£772.8m	£765.3m	£800.6m	£808.4m	£816.8m	£829.1m

Our preferred approach is Method 3. This combines external benchmarking information with the representations of Scottish Water and the concerns of the quality regulators. It should be noted, however, that our conclusion is not particularly sensitive to the approach that is adopted. The range of results from the other five methods is within 4% of our allowance. In our view, this suggests that our analysis is robust and that our allowance is a fair assessment of the lowest reasonable overall cost of maintaining the serviceability of the assets to customers.

Table 20.4 compares our conclusion with the allowance in the Commissioner's draft determination.

¹⁹ In each case, the econometric analysis includes the impact of new information on sewer and critical sewer length.

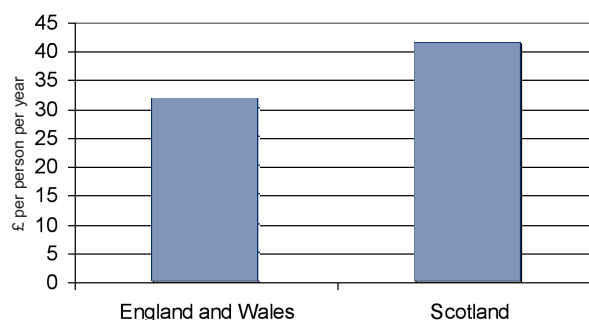
²⁰ Sewer laterals are included in exceptional items.

Table 20.4: Our assessment of the required level of capital maintenance

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for capital maintenance
Econometric models baseline using 2003-04 information		£585.5m	£585.5m	£585.5m
Additions to baseline for 2004-05 information				£32.2m
Revised baseline				£617.8m
Revised baseline at econometric benchmark efficiency				£585.6m
Estimated baseline at Scottish Water's efficiency				£746.2m
Efficiency challenge				-£77.0m
Efficiency adjustment		-£33.3m	£52.8m	-
Baseline after efficiency		£552.2m	£638.3m	£669.2m
Reallocation of central lab costs		-£2.8m	-£2.8m	-£2.8m
Drinking Water (Public Health) addition		£20.0m	£20.0m	£10.0m
Environment addition		£20.0m	£20.0m	£20.0m
Progress to Common Framework		-	£15.0m	£15.0m
Additional leakage money		£40.0m	£40.0m	£40.0m
Iron & manganese (from quality)		£17.5m	£17.5m	£20.2m
Metering		-	£12.0m	-
Quality programme		-	£20.0m	-
Sewer laterals				£11.5m
Cryptosporidium sampling equipment				£0.1m
Key MWH exceptional items - trunk main investigations				£3.2m
Key MWH exceptional items - dams and reservoirs				£4.0m
Key MWH exceptional items - Invercarnie aqueduct				£8.5m
Key MWH exceptional items - Dual manholes, Buchan traps				£0.4m
Key MWH exceptional items - Outfalls				£1.3m
Capital maintenance total	£1,068.1m	£646.9m	£780.0m	£800.6m

We wish to emphasise our view that our allowance is sufficient for Scottish Water to maintain the serviceability of its assets to customers. We have not sought to reduce or postpone the outcomes required by Scottish Ministers. Indeed, we believe that our additional allowances for leakage control and to meet the priorities of the quality regulators should allow Scottish Water to improve customer service performance in a number of areas.

We recognise that some stakeholders may find it hard to reconcile a reduction in the allowed for level of spending with an improvement in the levels of service to customers. To answer this point, and by way of illustration, we compared our allowance with that which Ofwat allowed for in England and Wales. Figure 20.1 compares Ofwat's annual average allowed for capital maintenance (by population served) for the period to 2010 with our allowance for the same period. This addresses Scottish Water's comments about the allowed increases in capital maintenance south of the border. The analysis shows that our allowance is around 30% higher than that which was accepted by the companies south of the border.

Figure 20.1: Comparison with Ofwat's provision for capital maintenance

We recognise that this simple comparison does not reflect the full picture. Firstly, Scotland has more assets to maintain per head of population (although these assets do tend to be smaller in size), reflecting its relative rurality. Second, there is some evidence that water mains are on average in worse condition in Scotland than they are in the areas of most of the companies south of the border²¹.

²¹ It should be noted that a strict reading of the ministerial objectives would do nothing to address this issue in the next regulatory control period.

We accept that these factors are likely to mean that greater capital maintenance investment could be justified in Scotland. However, we also note that the level of capital maintenance investment that Ofwat allowed for in its 2004 price review was in itself some 20% higher (before inflation and cost reductions arising from improved efficiency) than historic levels in England and Wales throughout the period since privatisation in 1989.

Over this period, companies have maintained and improved serviceability to customers. The recent increase allowed for by Ofwat results from detailed analysis (using the common framework) by companies of the future serviceability of their assets. We are not persuaded that these factors are likely to explain a 30% higher level of capital maintenance.

We are also not persuaded that Scottish Water's analysis of future serviceability trends is reliable. By Scottish Water's own admission, its knowledge of its asset base is poor. We expect that, as information improves, Scottish Water will be better placed to target the allowed for level of investment effectively. As such, we would expect to see the actual serviceability to customers of the assets to improve over this regulatory control period.

Assessment of investment required to improve drinking water quality

The Commissioner's allowed for capital investment to achieve the ministerial objectives relating to improving drinking water quality is shown in Table 20.5.

Table 20.5: Commissioner's conclusions on the allowed for investment to deliver the ministerial objectives relating to the improvement of drinking water quality (pre-efficiency)

	Original Table C	Highest estimated	Lowest realistic
Water treatment works	£830.8m	£581.6m	£415.4m
Water mains rehabilitation (DW5 iron and manganese)	£22.2m	£0.0m	£0.0m
Water resources (Water Framework Directive)	£134.7m	£94.3m	£67.8m
Security enhancement at water treatment sites	£76.4m	£61.1m	£61.1m
Customer requested lead pipe removal	£20.7m	£20.7m	£20.7m
Other minor elements	£30.2m	£30.2m	£30.2m
Scottish Water reduction for 'programme overlap'	-£51.2m	-£35.9m	-£25.6m
Total 2006-10	£1,063.7m	£752.0m	£569.6m

We received a number of representations from Scottish Water, the DWQR and other stakeholders concerning the investment that had been allowed for improvements to drinking water quality. We have analysed these representations carefully. We have also reviewed the approach that the Commissioner used in his draft determination.

Water treatment works

We noted the concerns that were expressed by both Scottish Water and the DWQR in relation to the Commissioner's assessment of the required level of investment in water treatment works. We also noted that Faber Maunsell decided to conduct a detailed internal review of its conclusions, but that in its revised report the results of the analysis were the same.

We sought to understand how a bias in Faber Maunsell's assessment of the investment required at water treatment works could impact on our conclusions. We assumed that there was a 10% chance that the assessor was optimistic in his conclusions (ie that less investment was required) by at least two grades.

We further assumed that he was never pessimistic. This suggested that the proposed reduction in the required level of investment should be reduced to 39.6%.

Faber Maunsell carried out an assessment of the 'need', 'scope' and 'strategy' elements of a sample of 37 proposed projects at water treatment works. In his representations on the draft determination, the Drinking Water Quality regulator expressed concern about the assessment of 'need' by Faber Maunsell. He questioned whether this element of the assessment was consistent with the Quality and Standards III process.

Our understanding is that the Faber Maunsell analysis of 'need' was intended to establish the extent to which the solutions proposed by Scottish Water were consistent with the improvements required by the ministerial objectives. In particular, Faber Maunsell's assessment aimed to establish whether the proposed solutions were proportionate or whether the ministerial objectives could reasonably be met through improved operational practice or less extensive capital investment.

We reviewed both of the Faber Maunsell reports with care. In our view, Faber Maunsell's detailed commentary on its approach seems reasonable. We agree that there could be circumstances, in principle, where the proposed solution is not proportionate and that it is appropriate to include a 'need' assessment.

However, we respect the DWQR's remit and accept that we should exclude the Faber Maunsell assessment of need. If this element of the assessment is removed, the reduction in the level of investment required at water treatment works decreases to 32% from Faber Maunsell's original conclusion of 45% to 50%. We note that this is broadly consistent with the Commissioner's highest estimated value (at 30%) in his draft determination.

In general, we believe that we could reasonably have set the allowed for level of investment in water treatment works at or just below the highest estimated cost used by the Commissioner in his draft determination (£581.6 million).

We have noted that the DWQR recognised that the required level of investment had been inflated in Scottish Water's second draft business plan.

The DWQR's representations suggested that we should take the average of the Faber Maunsell assessment (adjusted to remove the assessment of 'need') and the earlier Reporter's estimate. The average of the 15% reduction suggested by the Reporter and the 32% identified by Faber Maunsell would suggest that a reduction of 24% would be appropriate. While we believe that a larger adjustment could be justified, we have decided to accept the DWQR's representation.

In our view, this allowed for level of investment (which is greater than is justified on the evidence available) should ensure that Scottish Water can deliver robust solutions to the improvements in water treatment required by the ministerial objectives. This increased allowance should also ensure that there is no delay in delivering the required improvements.

We therefore concluded that the lowest reasonable cost (pre-efficiency) for delivering the investment proposed at water treatment works is 24% lower than that which is in Scottish Water's investment plan. This reduces the pre-efficiency level of investment required from £834.5 million to £637.5million.

Iron and manganese

As explained earlier, we have taken the same approach to investment in this area as the Commissioner took in his draft determination. We included this investment (adjusted only to reflect the scope for efficiency) in our allowance for capital maintenance. We believe that this should allow Scottish Water to achieve synergies with its water mains replacement programme. This reduces the allowed for investment in improving drinking water quality by £25.4 million²², but increases the allowed for investment in capital maintenance by £20.2 million (£25.4 million less the efficiency target²³).

²² Revised Table C figure.

²³ We discuss the scope for efficiency later in this chapter.

Water resources

We are concerned about the high degree of uncertainty surrounding the proposed investment in water resources. There is still considerable uncertainty on the detailed requirements of the Water Framework Directive. Both Scottish Water and SEPA recognised this uncertainty in their representations. SEPA commented that it is committed to working with this Office, Scottish Water and the Scottish Executive to develop procedures for managing and defining the programme of work required. In the light of this clear commitment from SEPA, we are confident that this work can be completed in a timely fashion such that the ministerial objectives for the 2006-10 regulatory control period can be met in full.

In setting the allowed for level of investment, we considered the need to ensure that Scottish Water takes a holistic approach to its investment decisions in improving water treatment and managing its abstractions. Clearly, it would not be appropriate to upgrade or conduct pro-active maintenance at a water treatment works that may later be closed. The ministerial objectives require Scottish Water to:

*“reduce abstraction and provide increased compensation flows at all drinking water sources in 78 water resource zones”.*²⁴

Scottish Water proposes to spend £128 million to meet this objective. We have already discussed our allowance for reducing leakage and ensuring that there is a proper understanding of the economic level of leakage at a water supply zone level. In our view, the investment in leakage reduction is likely to go a long way towards meeting the ministerial objective for reduced abstraction.

We recognise that it is also possible that meeting the ministerial objective will require a rationalisation of the number of abstraction points for raw water and, perhaps, a reduction in the volume of raw water abstracted at particular sites. It is likely that there may be a need to rationalise the number of water treatment sites.

Scottish Water’s investment programme addresses 230 of the 368 existing water treatment works (which is over 60%).

Even at the lower level of funding that we believe is required to meet the ministerial objectives on water quality, the proposed investment over the four-year regulatory control period represents around one-third of the total replacement cost of the assets. In our view, it is highly unlikely that this investment will not be influenced by the proposals to reduce abstractions in 78 water resource zones.

We consider that there is an opportunity to achieve synergies in the delivery of these separate ministerial objectives. Indeed, we believe that such a significant level of investment in water treatment would appear to offer a unique opportunity to rationalise the water treatment asset base. We note that the location of raw water abstractions and water treatment works has been built up in the past on the basis of political boundaries, rather than around optimal supply strategies.

We would expect Scottish Water to carry out proper strategic analysis of the opportunities to rationalise water treatment works, before investing in water quality improvements at these sites. Even if there are no opportunities for rationalisation in a particular area, we would expect Scottish Water to take account of the likely impact of future Water Framework Directive abstraction limits and leakage reduction measures.

We allowed £5 million in our allowed for capital expenditure (pre-efficiency) so that Scottish Water has the resources to carry out high level ‘water resource plans’ for the 78 identified water resource zones and in other zones where investment is planned at water treatment works. Such preliminary work is essential to the efficient and effective delivery of the ministerial objectives. We will require Scottish Water to consult with the DWQR and SEPA in carrying out these studies, to ensure that it has taken into account any possible opportunities for rationalisation or capacity reduction. In particular, we would expect each water resource plan to have examined the opportunities for alternative supply within 25 kilometres of major conurbations. While, inevitably, there may be less scope for rationalisation or capacity reduction in the Highlands, we would still expect some opportunities to exist.

²⁴ Scottish Executive Direction on Objectives 2006-10, 28 September 2005.

We do not consider that conducting these water resource plans should delay the delivery of the investment programme. Indeed, we can see no reason why many of these plans should not have been completed by the start of the regulatory control period. Work in this area was included in Scottish Water's proposed early start programme and is currently underway. In our view, the remainder of these studies could be complete within the first year of the regulatory control period.

We concluded that the opportunity for synergy with the water treatment works programme and our allowance to address leakage justifies a significant reduction in the level of investment that was proposed by Scottish Water. We therefore accepted the lowest realistic cost identified in the Commissioner's draft determination. In arriving at the lowest realistic cost, the Commissioner made a 20% reduction for over-scoping and took account of his allowance for leakage reduction. We also suggest that £5 million of the total investment should be spent on developing the water resource plans.

Security enhancement at water treatment sites

We reviewed the draft determination, the conclusions of the Reporter and the representations of Scottish Water. In our view the allowed for level of investment that the Commissioner included in his draft determination is broadly reasonable. We see no persuasive reason to change the basis of this allowance.

Customer requested lead pipes

We have not made any adjustment to the scope of Scottish Water's proposals in this area. This is consistent with the Commissioner's draft determination. Our analysis has suggested that the target to replace 35,000 lead communication pipe in four years is significantly in excess of the level of customer demand in the past. However, it is important that we allow sufficient funding for the ministerial objective to be met – even if there appears to be a likelihood that customers will be paying in advance of need. We have decided to address this by prohibiting virement of these funds to other categories of investment. We recommend that any allowed for capital expenditure

that is unused at the end of the regulatory control period should be added to the financial buffer²⁵.

Other minor elements

We have not adjusted (pre-efficiency) the level of investment that Scottish Water included in its investment plan.

Quality and Standards II completion projects

Scottish Water stated in its representations of September 2005 that the final determination should allow £14 million (total for all categories of investment, post-efficiency) for the completion of 43 projects which have been started in Quality and Standards II but which they claim were always recognised as carrying over into Quality and Standards III. These projects do not form part of the 'overhang' of Quality and Standards II projects as they were only part funded in the Quality and Standards II period.

We have identified these projects separately in the final determination and not applied any scoping reductions to this investment. We have, however, applied our efficiency assessment to this investment as it is reasonable to expect Scottish Water to achieve efficient procurement in delivering the remainder of these projects.

The Drinking Water component of this category of investment amounts to £10.0 million.

Programme overlap

In his draft determination, the Commissioner adjusted Scottish Water's 'programme overlap' reduction in its investment plan to take account of the pre-efficiency reduction in the investment allowed for to meet the ministerial objectives for water quality. We have taken a different approach. We reduced the programme overlap component by the same proportion as our allowed for capital maintenance relative to that claimed by Scottish

²⁵ This is discussed in more detail in Chapter 30.

Water in its investment programme. In our view, this would appear to be more consistent with Scottish Water's definition of the programme overlap component (ie synergies between investment in capital maintenance and in improving water quality).

Our allowed for level of investment to meet the ministerial objectives in improving water quality

Our allowed for level of investment to meet the ministerial objectives in improving water quality is shown in Table 20.6.

Table 20.6: Our allowed for level of investment to meet the ministerial objectives in improving water quality (pre-efficiency)

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Allowed for capital expenditure (pre-efficiency)
Water Treatment Works	£834.5m	£409.4m	£573.2m	£637.5m
Water Mains Rehabilitation (DW5 Iron and Manganese)	£25.4m	£0.0m	£0.0m	£0.0m
Water Resources (Water Framework Directive)	£128.3m	£67.8m	£94.3m	£57.7m
Water Treatment Strategies	£0.0m	-	-	£5.0m
Security Enhancement at Water Treatment sites	£76.6m	£61.1m	£61.1m	£61.3m
Customer Requested Lead Pipe Removal	£20.7m	£20.7m	£20.7m	£20.7m
Other minor elements	£30.3m	£30.2m	£30.2m	£30.3m
Quality & Standards II completion projects	£10.0m	£6.0m	£8.4m	£10.0m
Scottish Water reduction for Programme overlap	-£51.8m	-£25.6m	-£35.9m	-£38.8m
Drinking Water Total	£1,074.0m	£569.6m	£752.0m	£783.6m

We note that our allowed for level of investment exceeds the highest estimated cost in the Commissioner's draft determination. This results from our significantly increased allowance for investment in water treatment works. We have taken full account of the DWQR's

representations in this area. As such, we believe that Scottish Water should deliver robust solutions in meeting the ministerial objectives. It is also worth re-iterating that we have also allowed for additional operating costs such that the DWQR's concerns about operational practices can be addressed effectively.

Assessment of investment required to meet environmental objectives

The Commissioner's conclusion on the allowed for level of investment to meet the ministerial objectives for the environment are shown in Table 20.7.

Table 20.7: Commissioner's conclusion on the allowed for level of investment to meet the ministerial objectives for the environment (pre-efficiency)

	Original Table C	Highest estimated	Lowest realistic
UIDs	£680.6m	£252.4m	£126.0m
Study work increase		£6.0m	£6.0m
UID sub-total	£680.6m	£258.4m	£132.0m
Sewage treatment work upgrade	£127.8m	£99.9m	£99.9m
Septic tank upgrade	£12.0m	£12.0m	£12.0m
Sludge treatment centre	£8.3m	£0.0m	£0.0m
Integrated Pollution Prevention and Control schemes	£9.4m	£9.4m	£9.4m
Landfill directive	£3.5m	£3.5m	£3.5m
Other minor programme elements	£3.6m	£3.6m	£3.6m
Total 2006-10	£845.2m	£386.8m	£260.4m

We considered the representations that we received from stakeholders concerning the level of investment in meeting the ministerial objectives for the environment that was allowed for in the draft determination. Our conclusions on the appropriate level of investment are outlined below.

UIDs

In his draft determination, the Commissioner proposed substantial reductions to Scottish Water's proposed investment on UIDs. These reductions were based on the following.

- Analysis of Scottish Water's costs of carrying out UID work in the Quality and Standards II period.
- Analysis of company cost estimates in England and Wales for the 'AMP4' investment period (2005-10).
- Faber Maunsell's assessment of Scottish Water's UID programme costs. Their assessment was based on a detailed review of a representative sample of 40 of the UID schemes.

In its representations on the draft determination, Scottish Water argued that the Faber Maunsell work was flawed. It also argued that the Commissioner had not taken account of the different mix of UIDs that the Quality and Standards III programme sought to address, compared with the mix of UIDs included in Quality and Standards II and in AMP 4 in England and Wales. We accept this representation.

In Chapter 17 we analysed the unit cost of UIDs in the AMP2, AMP3 and AMP4 periods. We have also analysed the mix of UIDs covered by the AMP4 and Quality and Standards II investment programmes. As such, we sought to take account of the cost differential between addressing UIDs that have a bathing water driver and those that do not. This allowed us to revise the Commissioner's analysis of an appropriate allowance for addressing the identified UIDs.

Scottish Water's revised Table C submission included a breakdown of the UID programme. This is reproduced as Table 20.8.

Table 20.8: Revised Table C: breakdown of UID programme

UID Class	Number of UIDs	Revised Table C cost	Average cost
Overflow UIDs	255	£566.3m	£2.22m
PFI UID schemes	3	£33.8m	£11.26m
Surface water outfalls	5	£4.4m	£0.87m
Dual manhole issues	14	£0.6m	£0.04m
Total	277	£605.0m	£2.18m

We reviewed the experience of the companies south of the border to ensure that this proposed UID programme represents a reasonable challenge. We note that in the AMP3 investment programme for 2000-05, Ofwat allowed investment at a total of 4,495 UID schemes²⁶. This would suggest an average of 450 schemes per company. As Scottish Water is a relatively large company compared with the companies south of the border, we can see no reason why the investment that is required by the ministerial objectives cannot be delivered during the regulatory control period.

We also sought to understand the mix of UIDs that Scottish Water has to deliver. We analysed the overflow UIDs and the PFI UIDs in Scottish Water's programme in line with the three project driver categories that Scottish Water identified in its representations. This analysis is shown in Table 20.9.

Table 20.9: Mix of overflow and PFI UIDs by driver

UID type	Number of UIDs	Total Cost Q&S3a	Average unit cost
Aesthetic	77	£41.4m	£0.54m
Inland water quality	118	£230.0m	£1.95m
Coastal water quality	63	£328.7m	£5.22m
Totals	258	£600.1m	£2.33m

In its representations, Scottish Water argued that the Commissioner had incorrectly assumed that three UIDs located near to PFI works were actually located on the site of the PFI works. It reasoned that the required capital investment at these sites remained the responsibility of Scottish Water and not of the PFI contractor. We have again accepted this representation and included these UIDs in our analysis.

We used the information on average UID unit costs that we set out in Chapter 17 to assess a range of reasonable costs for the UID programme. This analysis takes account of the mix of UIDs that Scottish Water outlined in its representations. We consider that it would be reasonable for the coastal water quality UID projects in Scottish Water's programme to be costed at the same average cost as the bathing water UIDs in the

²⁶ From Ofwat, 'Final determinations: future water and sewerage charges 2000-05', page 114.

companies' AMP 4 investment plans. We believe that it would then be reasonable to assume that the remaining UID projects could be delivered for the average unit cost of the AMP4 non-bathing water UIDs.

We set out the results of our analysis in Table 20.10. This analysis suggests that it would be reasonable to expect Scottish Water to deliver the identified UIDs for £172 million pre-efficiency. We assumed no reduction in Scottish Water's proposed investment in surface water outfalls and dual manholes (pre-efficiency).

Table 20.10: Allowed for investment to address UIDs assuming AMP4 company investment plan unit costs

UID type	Number of UIDs	AMP 4 unit cost	Total
Aesthetic UIDs	77	£0.44m	£33.9m
Inland water quality UIDs	118	£0.44m	£51.9m
Coastal water quality UIDs	63	£1.29m	£81.5m
Surface water outfalls	5	-	£4.4m
Dual manhole issues	14	-	£0.6m
Totals	277		£172.3m

In our view, we may have been able to justify a much lower unit cost to address aesthetic UIDs (which, in many cases, may require little more than the installation of a screen).

We also considered an alternative approach to test our conclusions on aesthetic UIDs. We analysed the information that is available on Scottish Water's UID project outturn costs during Quality and Standards II. Our analysis indicates that there are 265 schemes where we can observe unit cost information for the different types of UID. This analysis is shown in Table 20.11.

Table 20.11: Scottish Water's UID unit costs during Quality and Standards II

Type	Number of UIDs	Quality and Standards II total cost (03-04 prices)	Quality and Standards II unit costs (03-04 prices)
Aesthetic	172	£33.06m	£0.192m
Inland	77	£49.70m	£0.645m
Coastal	16	£10.18m	£0.637m
	265	£92.94m	£0.351m

We used the unit costs suggested by this analysis of Scottish Water's reported costs to assess a reasonable allowance for the Quality and Standards III UID investment programme. This analysis is shown in Table 20.12.

Table 20.12: Analysis of allowed for investment in UIDs using Quality and Standards II unit costs

UID type	Number of UIDs	Quality and Standards II unit costs (03-04 prices)	Total
Aesthetic UIDs	77	£0.192m	£14.8m
Inland water quality UIDs	118	£0.645m	£76.1m
Coastal water quality UIDs	63	£0.637m	£40.1m
Surface water outfalls	5	-	£4.4m
Dual manhole issues	14	-	£0.6m
Totals	277		£136.0m

In our view this analysis includes a more reasonable unit cost for aesthetic UIDs, but the costs for coastal water UIDs, which typically involve a bathing water driver in Quality and Standards III, would appear to be quite low.

We believe that it would be reasonable to use the Quality and Standards II unit costs for aesthetic and inland water UIDs and the AMP4 company investment plan unit cost for coastal water UIDs.

We set out our analysis of the required level of investment in Table 20.13. This suggests that we should allow for pre-efficiency investment of £177 million to ensure that Scottish Water can deliver the ministerial objectives.

Table 20.13: Allowed for investment in UIDs using a combination of Quality and Standards II and AMP4 unit costs

UID type	Number of UIDs	Allowed for unit cost	Total allowed for cost
Aesthetic UIDs	77	£0.192m	£14.8m
Inland water quality UIDs	118	£0.645m	£76.1m
Coastal water quality UIDs	63	£1.29m	£81.3m
Surface water outfalls	5	-	£4.4m
Dual manhole issues	14	-	£0.6m
Total	277		£177.1m

We also examined the conclusions of Faber Maunsell in its review of Scottish Water's proposed UID investment programme. In particular, we noted the flaws that Faber Maunsell identified in Scottish Water's algorithm for costing UIDs. Faber Maunsell suggested that the allowed for investment could be reduced by between 55% and 60%. This suggested a range of £242 million to £272 million.

We also note that Scottish Water has identified that the cost for the three UIDs at PPP sites, which we have now included in our assessment, are high. As such, they may distort the average unit cost that would be observed in Scotland.

In the light of this, we concluded that a pre-efficiency programme cost of £200 million should be at least sufficient to deliver the UID investment programme. In this regard, we note that even if we allowed Scottish Water's full claim for the three UIDs at PPP sites, this would imply an average unit cost of £650,000 for all of the remaining UID projects. This is 46% more than Ofwat allowed the companies in England and Wales at AMP3.

We note that both Scottish Water and SEPA welcomed the provision in the draft determination of an additional £6 million for drainage area studies. We are happy to retain this allowance and would note that the efficient delivery of the UID investment programme is likely to require the completion of appropriate strategies. This applies to the Glasgow Strategic Drainage Project area in addition to the other three catchments of Meadowhead, Stevenston and Portobello.

We are concerned by the suggestion that completing the necessary drainage area studies could delay the delivery of the ministerial objectives. Given the relatively small size of Scottish Water's UID programme in this regulatory control period, we do not believe that there is any justification for such a delay. We have therefore decided not to ring-fence any of the investment in this area. Instead Scottish Water must work with SEPA at each stage of the development of the catchment strategies to confirm that the list of UIDs will deliver the required ministerial outputs. In the event that the strategic drainage studies identify that a greater scope of work is required, we would expect Scottish Water to seek an interim determination if the increase in cost is sufficiently material, or to submit a claim for this investment at the next Review.²⁷

However, we would note that unless Scottish Water can demonstrate that it has followed good practice in allocating its investment on UIDs, we would not be prepared to consider increased allowances either during this regulatory control period at an interim determination or at a subsequent determination.

We will require Scottish Water to work with SEPA and the Reporter to complete the strategic study work for the four main catchments by 1 April 2007. A collaborative approach should ensure that there is no major delay in delivering the ministerial objectives. In the meantime, we believe that there are many UIDs Scottish Water can progress. This should avoid any 'back end loading' of the delivery of ministerial objectives and ensure that the entire UID programme is delivered within the 2006-10 regulatory control period.

Sewage treatment works

We noted the Reporter's comments on the costing of sewage treatment works. He remarked that Scottish Water had calculated the cost of building or up-grading sewage treatment works based on traditional solutions, and that it could achieve savings if it used 'package plants'²⁸ for small populations.

Notwithstanding these comments, we have not made any reduction in the pre-efficiency allowed for investment

²⁷ This is the logging up process described in Volume 7 Chapter 6 of the draft determination.

²⁸ Packaged sewage treatment plants comprise self contained units which can be constructed with minimum on-site work. For small communities these offer lower cost solutions than traditional sewage treatment works.

in sewage treatment works. This is consistent with the approach taken in the draft determination.

We considered carefully Scottish Water's representations on the approach that we should take to the further investment that is required at PPP sites. In general, we are concerned that so soon after the commissioning of these works significant additional investment not covered by the original contracts is required.

We accept the Commissioner's view that the investment in PPP sewage treatment works should be disallowed and transferred instead to a PPP operating cost allowance. We recognise that the contractors are not obliged to provide this investment, but given that we are allowing an attractive rate of return on this new investment, we can see no reason why the contracted consortia should not want to increase their profitability, nor why customers should pay more. Our allowed rate of return on this investment implies an equity return of 18.3% (assuming 85% gearing) if the proceeds are borrowed at 7.5%.

We agree with the Commissioner that it is unlikely to be practical for Scottish Water to own assets on the PFI contractor's sites. It will therefore be for Scottish Water to negotiate with the PPP contractor to ensure that the required outcomes are delivered. Again, we would be concerned if this were to be used as an excuse for delays in delivering the investment programme.

The transfer of the proposed investment at the PPP sewage treatment works to PPP operating costs reduces the allowed for investment at sewage treatment works from £109.1 million to £83.9 million. Similarly, the transfer of the Sludge Treatment Centre PPP project removes the proposed investment of £8.3 million from the capital investment programme.

We made no other changes (pre-efficiency) to the other elements of the investment programme that are required to meet the ministerial objectives for the environment. In this regard we also followed the approach that the Commissioner used in his draft determination.

Our allowed for investment to deliver the ministerial objectives for the environment

Our assessment of the lowest reasonable overall cost of delivering the ministerial objectives for the environment is shown in Table 20.14.

Table 20.14: Allowed for investment to deliver the ministerial objectives for the environment (pre-efficiency)

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Allowed for capital expenditure
UIDs	£605.0m	£126.0m	£252.4m	£200.0m
Study work	£0.0m	£6.0m	£6.0m	£6.0m
Sewage treatment work	£109.1m	£97.3m	£97.3m	£83.9m
Septic tank upgrade	£11.1m	£12.0m	£12.0m	£11.1m
Sludge treatment centre	£8.3m	£0.0m	£0.0m	£0.0m
IPPC schemes	£10.0m	£9.4m	£9.4m	£10.0m
Landfill Directive	£3.5m	£3.5m	£3.5m	£3.5m
Quality & Standards II completion projects	£2.3m	£2.8m	£2.8m	£2.3m
Other minor programme elements	£0.6m	£3.3m	£3.3m	£0.6m
Environmental total	£750.0m	£260.4m	£386.8m	£317.4m

Our allowed for level of investment is around the mid-point of the range that the Commissioner identified in his draft determination.

Customer service and retail investment to meet ministerial objectives

Conclusions of the draft determination

The draft determination allowed for just under £100 million to meet the ministerial objectives for improvements in customer service and the costs of introducing a licensing framework. This is more than Scottish Water proposed

in its original Table C investment programme. The Commissioner's conclusions are set out in Table 20.15.

Table 20.15: Commissioner's allowed for investment in customer service and retail

	Original Table C 2006-10	Highest estimated cost	Current lowest realistic cost
Pressure management	£5.7m	£5.7m	£5.7m
Odour management	£19.1m	£19.1m	£19.1m
Business metering	£0.7m	£0.0m	£0.0m
Sewer flooding	£58.6m	£58.6m	£58.6m
Introduction of competition	£0.0m	£15.0m	£15.0m
Total 2006-10	£84.1m	£98.4m	£98.4m

Pressure management, odour management and sewer flooding

In his draft determination, the Commissioner did not challenge the pre-efficiency investment claimed by Scottish Water to deliver the ministerial objectives on water pressure, odour management and sewer flooding. We reviewed the Commissioner's approach and the representations from stakeholders and concluded that we should adopt the same approach.

We consider that the £19.2 million of investment in odour control should certainly be sufficient to deliver at least the ministerial objectives. We recognise the considerable public concern about malodour from waste water treatment works. We would therefore be pleased to see further progress made if that were possible within the allowed for level of investment. We would recognise any such out-performance in the next Strategic Review of Charges.

In this regard, we believe that it is important to bear in mind that most of the large sewage treatment works are covered by PPP contracts and we would expect that responsibility for odour issues at these sites should lie with the PPP contractor.

We recognise that there is a significant odour problem at the Seafield PPP treatment works in Edinburgh. It should, however, be a matter for Scottish Water and the PPP contractor to agree how any required remedial

works are funded and the extent to which this requires any change to the existing contract. We consider that this allowed for investment should not be used to tackle odour issues at PPP works. Such investment would complicate the operation of the PPP contracts.

To ensure that this investment allowance is used exclusively to address odour problems, we will prohibit virement of the allowed for investment in this area to other categories of investment. This should ensure that the priorities established by the Scottish Odour Steering Group (SOSG)²⁹ working party will be met.

Business metering

In his draft determination, the Commissioner proposed that Scottish Water's planned investment in metering should be transferred from the enhancement investment programme to capital maintenance.

We reviewed the Commissioner's approach and decided that investment in metering should remain part of the enhancement investment programme. We allowed for sufficient investment to install an estimated 40,000 non-household meters. We consider that these meters are required in order to allow the retail licensing framework to operate properly. In our view, the cost of installing 40,000 meters should not exceed £12 million pre-efficiency. We have had regard to typical unit costs south of the border and have recognised the scope for efficiency in a programme of this size.

The experience of responses to meter optants south of border suggests that Scottish Water should be able to install around 20,000 meters a year. As such, all 40,000 meters could be installed before the market is due to be opened to new licensed retail service providers on 1 April 2008. In the event that Scottish Water has not completed the meter installation programme by April 2008, we believe that it should install a meter within one month of receiving a request from a non-household customer. This should allow non-household customers to take advantage of the new market arrangements. As noted in Chapter 8, we will require Scottish Water to charge on a measured basis from the date of installation.

²⁹ SOSG is made up of representatives from Scottish Water, the Water Customer Consultation Panels, Local Authority Environmental Health Officers, SEPA, the Water Industry Commission and the Scottish Executive.

Unplanned interruptions

Scottish Water's representations asserted that the Commissioner had made no allowance for the investment required to meet the Ministers' 'desirable' objective of a net reduction of 425 in the number of properties affected by unplanned interruptions in non-trunk mains. In its representations, Scottish Water said that £84 million (pre-efficiency) would be required to achieve this objective. Scottish Water reasoned that this cost was primarily associated with the replacement of asbestos cement water mains in the north west of Scotland.

It is important to note that Scottish Water's second draft business plan included this investment as capital maintenance. As such, it would have been covered in the Commissioner's allowance for such investment. The revised Table C separated out this investment. In allowing for investment to meet this ministerial objective in the final determination, we have effectively made the allowed for capital maintenance more generous.

We analysed the investment claimed by Scottish Water to reduce unplanned interruptions. Scottish Water stated³⁰ that the £84 million would be sufficient to replace 958km of water mains. We note from Scottish Water's annual return that this is around 10% of the water mains in its north west region³¹. We are concerned to note that the proposed investment amounts to nearly £200,000 for each property that would no longer suffer from unplanned interruptions. This appears to be a wholly disproportionate level of investment to meet the ministerial objective.

We can illustrate the disproportionality of this proposal with an example. Even if all properties experiencing unplanned interruptions had their entire water charges refunded (this year or in the future), this would have a net present value of just over £21 million.

To establish a more realistic estimate of the lowest reasonable cost of meeting the ministerial objective, we have calculated that the average length of water main serving each property in the north west is 51.1 metres³².

We assumed that, to achieve a reduction of 425 in the number of properties suffering an unplanned interruption, Scottish Water has to replace the entire length of water mains serving 4250 properties, or 10 properties for each unplanned interruption removed. In our view, if Scottish Water targeted this investment at those properties that have suffered multiple interruptions in recent years then it is likely that our proposed allowance would prove to be generous. We calculate that Scottish Water should not have to replace more than 217 km of mains³³, at an estimated cost of £18.5 million (pre-efficiency) to meet this objective.

We concluded that £18.5 million should be sufficient to ensure that the ministerial objective for a reduction in the number of properties affected by unplanned interruptions is met. We also allowed additional operating expenditure³⁴ to allow Scottish Water to improve its responsiveness to unplanned interruptions. In our view the combination of this extra allowed for capital expenditure and operating cost should bring significant benefits to the customers who have been affected by these network failures.

Introduction to competition

We reviewed the Commissioner's assessment of the level of capital investment that should be allowed for such that Scottish Water can respond effectively to the introduction of the licensing framework. We also reviewed Scottish Water's representations on the level of investment that it is likely to have to incur. We concluded that the Commissioner's post-efficiency allowance should be sufficient. We increased the Commissioner's pre-efficiency allowance slightly to £15.8 million so that the post-efficiency allowance was unchanged.

Our allowed for investment: customer service and the introduction of a licensing framework

Our allowed for investment to meet the ministerial objectives in customer service and the introduction of a licensing framework is shown in Table 20.16.

³⁰ From Scottish Water's response to our queries on their representations of September 2005.

³¹ Scottish Water's June 2005 Annual Return, Table E, Line E6.8, gives the length of mains in the north west region as 9,970km.

³² Scottish Water's June 2005 Annual Return, Table E, Line E6.2 gives the number of connected properties in the north west as 195,000. Dividing this by the length of mains gives 51.1m/property.

³³ By multiplying 10 x 51.1 x 425 = 217km; the estimated cost is then 217km x £85 per metre = £18.5 million.

³⁴ See Chapter 14.

Table 20.16: Allowed for investment in customer service and retail

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for investment
Pressure Management	£5.7m	£5.7m	£5.7m	£5.7m
Odour Management	£19.2m	£19.1m	£19.1m	£19.2m
Business Metering	£0.7m	£0.0m	£0.0m	£12.0m
Sewer Flooding	£60.2m	£58.6m	£58.6m	£60.2m
Reduction unplanned interruptions	£84.0m	-	-	£18.5m
Introduction to competition	£0.0m	£15.0m	£15.0m	£15.7m
Customer Service and Retail Total	£169.8m	£98.4m	£98.4m	£131.3m

Growth and first time provision

The draft determination allowed for investment of around £200 million to meet the ministerial objectives in alleviating development constraints and providing first time connections. The Commissioner's conclusions in his draft determination are shown in Table 20.17.

Table 20.17: Commissioner's conclusions on the level of investment required to meet the ministerial objectives to alleviate development constraints and provide first time connections

	Original Table C project cost totals 2006-10	Highest estimated cost	Current lowest realistic cost	Contribution from connecting customers (infrastructure charge)	Highest estimated cost – contribution from customer base	Current lowest realistic cost – contribution from customer base
Development constraints 'Part 3'	£66.9m	£61.4m	£54.0m	£30.0m	£31.4m	£24.0m
Development constraints 'Part 4'	£144.0m	£122.4m	£108.0m		£122.4m	£108.0m
Development constraints water resources	£10.4m	£8.9m	£7.8m		£8.9m	£7.8m
Total development constraints	£221.4m	£192.7m	£169.9m	£30.0m	£162.7m	£139.9m
First time provision 'Part 3'	£40.2m	£36.9m	£32.4m	£10.0m	£26.9m	£22.5m
First time provision 'Part 4'	£29.9m	£25.4m	£22.4m		£25.4m	£22.4m
Total first time provision	£70.0m	£62.2m	£54.8m	£10.0m	£52.3m	£44.9m
Total for growth investment	£291.4m	£254.9m	£224.7m	£40.0m	£214.9m	£184.7m

Development constraints

We reviewed the approach that the Commissioner used in his draft determination to assess the required level of investment to meet the ministerial objective of alleviating development constraints. We also considered carefully the representations that we received from stakeholders on this issue.

We consider that the changes proposed by the Scottish Executive in its consultation on the method of paying for connections to the water and sewerage networks³⁵ are particularly important. We are pleased that the arrangements for new connections in Scotland are being brought more closely into line with those south of the border. It is important that the contribution to developers' costs should be clearly linked to the future value of the connection to Scottish Water. It is also important that an infrastructure charge is introduced. Developers are only likely to pay an infrastructure charge when they intend to develop a site. This should reduce the more speculative demand for connection.

We considered carefully the Commissioner's approach to assessing the contribution towards reasonable cost that should be required from Scottish Water. We agree with the Commissioner that Scottish Water should not pass the benefits of any tax shield on to the connecting customer. In our review of these issues we are concerned that the approach proposed by both Scottish Water and the Commissioner in his higher estimate could leave the industry in Scotland open to challenge under state aid rules. Such a challenge could arise if we give an extra benefit to developers, by discounting future revenues at a rate that is demonstrably below the commercial cost of capital.

In the light of our review, we decided that we should adopt the same approach as the Commissioner used in his draft determination but that we should apply the discount rate of 3.75%³⁶ that is currently used by Ofwat. We maintained the proposed infrastructure charge at the same level as that assumed by the Commissioner in his draft determination.

We also noted that the Scottish Executive consultation proposes that a 'reasonable cost' contribution is made in respect of both Part 2 and Part 3 costs. Scottish Water's business plan and the Commissioner's draft determination assumed that only Part 3 costs would attract a reasonable cost contribution. This assumption was consistent with the conclusions of the Quality and Standards III process. We understand that the Scottish Executive received legal advice that it was difficult to differentiate sufficiently between the Part 2 and Part 3 elements of the connection. As such, we have also allowed for a contribution in respect of these costs.

In November 2005, Scottish Water submitted³⁷ a revised estimate for the Part 2 and Part 3 contributions that it would have to make. This was an increase of £78.4 million from its second draft business plan. In our view Scottish Water has significantly overstated its likely contributions. It would suggest that Part 2 contributions would be around £1000 for each property. It is also important to recognise that the contribution should only be made after the connected property becomes billable. As such, we should assume the same two year time lag for these contributions that we assumed in our revenue base forecasts.

We allowed for an additional £20 million to meet the reasonable cost contributions for Part 2 costs. This increases our total allowance to £45.6 million³⁸.

In its representations, Scottish Water questioned the scope reductions that the Commissioner had applied to Part 4 strategic capacity investment and to water resources. We reviewed the justification for these reductions that were outlined in the draft determination. We concluded that it is reasonable to expect that the new reasonable cost regulations were likely to lead to improved locational signals and better targeting of development. As such, we believe that we should reduce the pre-efficiency allowance claimed by Scottish Water by 25%. This is consistent with the lower estimate in the Commissioner's draft determination.

³⁵ Scottish Executive consultation, August 2005, 'Connecting to the system'.

³⁶ The Ofwat published rate is currently 6.25%. We have reduced this by 2.5% to take account of inflation.

³⁷ Letter from the Finance Director of Scottish Water to the Chief Executive of the Water Industry Commission dated 4 November 2005.

³⁸ This allowance is net of the predicted £30 million income from the proposed 'infrastructure charge' of £250 per property. Including this income, the total allowed investment for Part 2 and Part 3 contributions is £75.6 million.

Telemetry

In its revised Table C, Scottish Water claimed an additional £0.9 million (pre-efficiency) for telemetry costs associated with new development. We have accepted this claim.

First time provision

In its representations, Scottish Water claimed that the Commissioner's allowed for investment to meet the ministerial objective for first time provision had not properly taken account of the nature of these connections. Scottish Water explained that, in its view, customers would not be expected to contribute towards the cost of the connection. Scottish Water suggested that this investment related principally to addressing the environmental priorities of SEPA.

SEPA has subsequently confirmed Scottish Water's explanation.

In its representations, Scottish Water revised its estimates of the investment required in this area. It asserted that it had completed further analysis which showed that the required number of new connections was much lower than that envisaged in the second draft business plan. The revised figure was 806 new connections, compared with 1,750 connections included in the business plan. However, Scottish Water noted that the total investment required would be slightly higher than in the second draft business plan, "primarily as a result of providing the new level of treatment suitable for the identified drivers rather than costing at a generic treatment level"³⁹.

Scottish Water has invested from £12,000 to £54,000 per property⁴⁰ to deliver the first time rural sewerage programme (termed 'WIC 16') during Quality and Standards II. Scottish Water proposes to invest just over £90,000 to connect each property during Quality and Standards III. Scottish Water argues that this increased cost is associated with the more demanding performance standards required at waste water treatment works during Quality and Standards III.

We reviewed Scottish Water's representations carefully. We are not persuaded that Scottish Water needs to incur the high costs included in both its second draft business plan and its representations. The Reporter commented that Scottish Water's approach was based on traditional solutions and that savings would be available from the use of 'packaged' sewage treatment plants in small communities. Such an approach is likely to be particularly effective where communities are being connected to the sewerage system for the first time.

We concluded that an allocation of £50,000 per property should be sufficient to address the 806 properties identified. This gives a total pre-efficiency cost of £40.3 million.

Our allowed for investment to meet ministerial objectives on growth and first time provision

Our allowed for level of investment to meet the ministerial objectives in alleviating development constraints and making first time connections for rural communities is shown in Table 20.18.

Table 20.18: Investment allowed for growth and first time provision

	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowed for investment
Development constraints Part 2 & Part 3	£66.9m	£24.0m	£31.4m	£45.6m
Development constraints Part 4	£145.1m	£108.0m	£122.4m	£108.8m
Development constraints water resources	£10.7m	£7.8m	£8.9m	£8.0m
Telemetry	£0.9m	-	-	£0.9m
First time provision Part 3	£40.5m	£22.5m	£26.9m	£40.3m
First time provision Part 4	£30.0m	£22.4m	£25.4m	
Growth total	£294.0m	£184.7m	£214.9m	£203.5m

³⁹ Scottish Water Representations, September 2005, Appendix X2.12, page 72.

⁴⁰ Scottish Water Representations, September 2005, Appendix X2.12, page 73.

The scope for efficiency in the delivery of Scottish Water's enhancement investment programme

We reviewed the Commissioner's approach to determining Scottish Water's relative efficiency in delivering its capital investment. We also considered the representations that we received from Scottish Water and other stakeholders.

Review of the draft determination

In the draft determination, the Commissioner used Ofwat's cost base method to assess Scottish Water's relative efficiency. This technique measures only the efficiency of procuring standardised capital projects. It does not cover other areas of investment performance, such as the use of strategic solutions and improved planning of investment programmes.

The Commissioner commissioned Faber Maunsell to complete this work. Its analysis was reviewed by SMC – a Reporter for a leading company south of the border and confirmed by Ofwat. Faber Maunsell concluded that the efficiency gap was just under 25%.

When Ofwat set prices in 2004 it assumed that the companies could close 75% of their efficiency gap immediately: that is, from the first year of the new regulatory period. Ofwat also assumed that the benchmark was itself likely to improve. The Commissioner made the same assumptions in his draft determination, but identified a range of outcomes, depending on whether or not the 75% closure of the efficiency was required in the first year of the regulatory control period or phased over three years.

We reviewed the Commissioner's analysis. We approved some minor adjustments to the cost base standard costs⁴¹ that were suggested by the Commissioner's engineering advisors, and which the Commissioner had not regarded as material to his draft determination. We then repeated the Commissioner's analysis with our revised assumptions. Our revised analysis takes account of the change in the mix of the enhancement investment

programme. The overall impact of these changes is to increase Scottish Water's efficiency gap by 0.1%.

Review of Scottish Water's representations

In its representations, Scottish Water expressed the view that the Commissioner's cost base assessment contained a number of flaws. It believed that the draft determination overstated the scope for capital efficiency by £166.8 million.

We considered carefully Scottish Water's representations. In particular we have reviewed an analysis by Scottish Water's engineering consultants Jacobs Babbie⁴² of the Commissioner's application of Ofwat's cost base approach.

Scottish Water cites the report by Jacobs Babbie as evidence that the Commissioner's use of Ofwat's cost base is flawed. However, the Jacobs Babbie report explicitly states that it does not address the analysis that was completed by the Commissioner's advisors. The report provides an independent comparison of the cost base process as applied by Ofwat in its 2004 price review, and that applied in the draft determination. The report does not seek Ofwat's views on Jacobs Babbie's comparison of the approach in Scotland and in England and Wales.

We concluded that the Commissioner's cost base assessment was robust and needed only minor modification. We are reassured that Ofwat endorsed the detailed assessment.

Assessing a reasonable level of improvement in efficiency

We believe that the cost base approach is likely to understate the scope for Scottish Water to improve the efficiency of its capital expenditure. We consider that Scottish Water may find significant scope for synergies between different elements of the investment programme.

In our view, Scottish Water should face broadly the same challenge to improve its efficiency as Ofwat includes in setting its price limits. This should leave Scottish Water

⁴¹ Standard costs represent the work required to deliver each of a wide range of standardised projects that are typical of investment in the water industry.

⁴² Jacobs Babbie, 'SR06 cost base – rapid review of SW final submission', undated.

with similar relative scope to outperform. We have therefore adopted Ofwat's assumption that 75% of the cost base efficiency gap should be closed in the first year of the regulatory control period. We also required Scottish Water to improve its performance, year on year, in line with the expected annual improvement by the benchmark companies.

Table 20.19: summarises the impact of our efficiency assumptions on the allowed for level of enhancement investment.

Table 20.19: Effect of efficiency assumptions on the allowed for level of capital investment

Sub Category	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Our allowance for capital expenditure
Drinking Water Total	£1,074.0m	£569.6m	£752.0m	£783.6m
Environmental Total	£750.0m	£260.4m	£386.8m	£317.4m
Customer Service Total (excluding Retail)	£169.8m	£83.4m	£83.4m	£115.7m
Retail - Introduction of Competition	£0.0m	£15.0m	£15.0m	£15.7m
Growth Total	£294.0m	£184.7m	£214.9m	£203.5m
Total pre-efficiency enhancement investment	£2,287.8m	£1,113.1m	£1,452.2m	£1,435.9m
Cost base efficiency assumption		20.8%	15.4%	20.5%
Total post-efficiency enhancement investment		£891.3m	£1,237.5m	£1,151.1m

Our view on the funding required to complete Quality and Standards II

In his draft determination, the Commissioner allowed for £253 million in 2003-04 prices to complete Quality and Standards II. He made two adjustments to Scottish Water's second draft business plan estimate of £283 million. The first was a downward adjustment of £8.5 million to remove the effects of inflation after the end of Quality and Standards II. The second was a reduction of

£21.5 million to restate Scottish Water's estimate to a 2003-04 price base.

In its representations, Scottish Water asserted that we should allow for its full estimate of £283 million. It argued that its estimate of the remaining investment was stated in 2005-06 prices and did not include inflation after 31 March 2006.

We examined Scottish Water's representations and its business plan. We are content that the adjustments made by the Commissioner are consistent with Scottish Water's second draft business plan. We made one minor change, which reflects the inflation assumptions that we have used in the final determination. Our revised allowance is shown in Table 20.20.

We also considered Scottish Water's representations on the Commissioner's reduction in the allowed for level of investment in line with his agreement with Scottish Water relating to the unsubstantiated claim of efficiency made by the former East of Scotland Water Authority in 2001. Scottish Water's Finance Director wrote to the Commissioner on the 28 February 2003 agreeing to his proposal to make an adjustment in the next regulatory period. We are not aware of any subsequent modification to this agreement and we therefore intend to make the same adjustment.

Table 20.20: Assessment of Quality and Standards II 'overhang'

	Value of adjustment	Adjusted overhang
Scottish Water's claimed overhang	-	£283m
Reduction for the effects of inflation post 31 March 2006	-£8.5m	£274.5m
Restated at 2003-04 prices	-£21.5m	£252.6m
Reduction for unsubstantiated East of Scotland Water Authority's efficiency claims (2003-04 prices)	-£55.7m	£196.9m
Allowed Quality and Standards II overhang	-	£196.9m

Our conclusions on the allowed for investment to meet the ministerial objectives

Scottish Water's representations reaffirmed that it needed to invest £3,387 million to meet all of the Ministers' objectives for the industry for 2006-10. We noted that such an investment programme would have been at least 20% larger than the largest four-year programme ever delivered in the water and sewerage industry in the UK.

We reviewed the representations of Scottish Water and other stakeholders in detail. We took account of these representations in reaching our conclusions on the lowest reasonable overall cost of delivering the 'essential and desirable' ministerial objectives. We made a number of changes to the draft determination in response to the representations that we received and to reflect new information that has become available. In particular we:

- included Scottish Water's proposed Quality and Standards III 'early start' investment in 2005-06 in our assessment of the programme;
- increased the provision for water treatment works, to take account of representations on the Commissioner's assessment of costs in this area;
- identified the scope for synergies between the investment in water treatment and the reductions in abstraction expected from implementation of the Water Framework Directive;
- allowed for the development of water resource plans to ensure that these synergies are achieved;
- included an allowance for the different characteristics of UID projects in our assessment of the UID programme cost;
- included provision for meeting the ministerial objectives on reducing the occurrence of unplanned interruptions;
- allowed for a provision for 'Part 2' costs to be included in our assessment of 'reasonable cost' payments;
- included Scottish Water's provision for telemetry upgrades triggered by new development;
- re-assessed the provision for first time connections; and

- increased the capital maintenance provision to take account of representations received.

Table 20.21 summarises our conclusions on the level of capital investment that we should allow for in meeting the ministerial 'essential' and 'desirable' objectives for the industry in the 2006-10 regulatory control period.

Table 20.21: Summary of allowed for investment 2006-10

Sub Category	Revised Table C	Lowest realistic cost in draft determination	Highest estimated cost in draft determination	Final determination
Drinking Water Total	£1,074.0m	£569.6m	£752.0m	£783.6m
Environmental Total	£750.0m	£260.4m	£386.8m	£317.4m
Customer Service Total (excluding Retail)	£169.8m	£83.4m	£83.4m	£115.7m
Retail - Introduction of Competition	£0.0m	£15.0m	£15.0m	£15.7m
Growth Total	£294.0m	£184.7m	£214.9m	£203.5m
Total pre-efficiency enhancement investment	£2,287.8m	£1,113.1m	£1,452.2m	£1,435.9m
Cost base efficiency assumption		20.8%	15.4%	20.5%
Total post-efficiency enhancement investment		£891.3m	£1,237.5m	£1,151.1m
Capital Maintenance Total	£1,068.1m	£646.9m	£780.0m	£800.6m
Total post efficiency new investment		£1,538.2m	£2,017.5m	£1,951.8m
Overhang		£253.0m	£253.0m	£252.6m
ESWA Efficiency		£54.9m	£54.9m	£55.7m
Total post efficiency investment including overhang		£1,736.3m	£2,215.6m	£2,148.7m

This is the largest investment programme in Scotland's water industry in recent times. Table 20.22 demonstrates that while this a very large investment programme, which promises significant improvements in public health, the environment, customer service and the alleviation of development constraints, it is a programme that customers can reasonably expect to be delivered in a timely and efficient way.

Table 20.22: Comparison of investment programmes in Scotland and England and Wales in 2005-10

Company	Total investment 2005-10	Rank	Total investment per billed property (2005-10)	Rank
Anglian	£1,546m	6	£696	9
Dwr Cymru	£1,207m	8	£933	5
Northumbrian	£885m	9	£596	11
Severn trent	£2,321m	4	£659	10
South West	£804m	10	£1,139	2
Southern	£1,648m	5	£1,028	3
Thames	£3,261m	1	£791	7
United utilities	£2,642m	3	£896	6
Wessex	£796m	11	£1,002	4
Yorkshire	£1,532m	7	£743	8
Scottish Water	£2,727m	2	£1,180	1

We recognise that our allowed for investment is some 37% less than the £3,387 million that was set out in Scottish Water's second draft business plan. However, we note that such a reduction is not unprecedented: the companies in England and Wales were able to reduce capital expenditure by 39% and 35% in the AMP2 (1995-00) and AMP3 (2000-05) regulatory control periods compared with the costs that were included in the investment plans they submitted to Ofwat⁴³. We also understand that Ofwat reduced the enhancement investment proposed in United Utilities' second draft business plan by a broadly similar amount to reflect its view on the scope of investment required and the scope for improved efficiency.

We are concerned that the scope of much of what Scottish Water proposed to do was not required to meet the ministerial objectives. We also note that the unit costs used in costing this programme appear to be very high, both in relation to Scottish Water's outturn costs for Quality and Standards and compared with the unit costs of the companies south of the border. In particular, it does not appear that Scottish Water has properly assessed non-capital approaches to meeting the ministerial objectives. We have ensured that Scottish Water has sufficient operating costs in order that it does

not feel constrained by operating cost efficiency targets to adopt a higher cost capital solution to meet the ministerial objectives.

We are confident that we have allowed for sufficient investment to meet both the 'essential' and 'desirable' objectives set by Ministers. Scottish Water can deliver the ministerial objectives if it seeks to use the most cost-effective solutions and to learn from best practice south of the border.

⁴³ The 1994 projection by companies was a total investment of £24.6 billion and this investment was delivered for an assessed £14.9 billion. The 1999 projection by companies was a total investment of £22.6 billion. The outturn for this investment is assessed.

Section 5:

Financing costs and ratios

Chapter 21: Introduction

Introduction

As a public sector organisation, Scottish Water is able to access public loans from the Scottish Executive. These loans attract interest rates that are lower than the cost of commercial debt of similar term length for the water and sewerage companies in England and Wales.

Scottish Water's access to government borrowing is subject to limits set by the Scottish Ministers. In September 2005, Ministers issued a statement on charges which set the limits that Ministers have applied to Scottish Water during the 2006-10 regulatory control period.

Customers benefit significantly from Scottish Water's ability to access this relatively cheap borrowing. In our role as regulator, it is important that we take full advantage of this. At the same time, however, we are mindful not to reduce the impact of the hard budgetary constraint on current management or to increase bills for future customers disproportionately.

During the next regulatory control period, Scottish Water will be undertaking a significant capital investment programme. This will benefit customers, both now and in the future. Effective regulation requires, however, that each generation of customers should pay the full cost of the water and sewerage services it consumes. This important principle was underlined in the Ministerial statement, which required us to ensure that the charges we set for this regulatory control period would not disadvantage future customers.

Scottish Water has only two sources of funds: revenue from customers and new debt. Any new debt will need to be repaid, with interest, from future revenue. The prospects for future prices will be determined by the extent to which capital investment is funded from revenue or from new borrowing.

In their September statement, Ministers required Scottish Water's financial strength to be improved, if possible, over the 2006-10 regulatory control period. Our priority is to ensure that Scottish Water is financially sustainable. To measure the financial sustainability of Scottish Water, the Commission has adopted the same financial ratios that Ofwat used to assess the water

industry in its 2004 price review. We believe that these ratios represent a good measure of financial sustainability.

Structure of this section

In this section, we discuss the funding required to finance the capital programme. It comprises six chapters:

- Chapter 21 is this introduction.
- Chapter 22 summarises the conclusions of the Water Industry Commissioner for Scotland in his draft determination on financial costs and ratios.
- Chapter 23 outlines new information that has become available since the draft determination was published.
- Chapter 24 summarises Scottish Water's representations on the financial costs and ratios in the draft determination.
- Chapter 25 summarises the representations from other stakeholders.
- Chapter 26 outlines our conclusions following our review of the financing costs and ratios in the draft determination and the representations made by stakeholders.

Chapter 22:

Conclusions of the draft determination

Introduction

In his draft determination, the Commissioner explained that he had moved towards the regulatory capital value (RCV) method of price setting. This required the Commissioner to establish an appropriate allowed rate of return and an initial RCV. He explained that the initial RCV would increase in line with both inflation and net new investment (ie total efficient capital investment less the allowed for depreciation charge). The Commissioner noted that it was important that the cash allowed return on the RCV was sufficient, but no more than sufficient, to allow Scottish Water to comply with the Ofwat financial ratios¹.

The allowed rate of return

In his draft determination, the Commissioner explained that a regulator of private sector companies sets an allowed rate of return. This is often referred to as the cost of capital. The regulator will set this rate of return to reflect current and expected market conditions. The regulator has a duty to set an appropriate rate of return that will allow an efficient company properly to finance its functions. The company is free to choose a mixture of debt and equity funding, but the rate of return on its RCV is fixed (unless it outperforms efficiency targets).

The Commissioner contrasted this with the situation in the public sector. The Commissioner was not able to set the rate of return based on his observation of the cost of capital in the market because it is the Government that sets Scottish Water's cost of debt. The Commissioner therefore had to take account of the advice in the Ministerial Guidance² about the public expenditure that was likely to be made available to Scottish Water.

As a public sector organisation, Scottish Water has no contributed equity capital, although it generates trading surpluses and reinvests these proceeds. The Commissioner termed this reinvestment 'customer retained earnings'.

In his draft determination, the Commissioner set an allowed cost of debt and an allowed cost of customer

retained earnings; he also made a full allowance for the costs of embedded debt. As such, the Commissioner ensured that Scottish Water had not been penalised for the high cost of debt that had been taken out at historically higher interest rates.

The allowed rate of return is the rate of return that the Commissioner believed Scottish Water would require in order to meet the objectives that were set by the Scottish Ministers. His role was to set the maximum level of charges consistent with the delivery of the ministerial objectives at the lowest reasonable overall cost.

The Commissioner explained that if he set the allowed rate of return at too low a level, there was a risk that Scottish Water would not have sufficient funds to meet its obligations. This could result in debt increasing to unsustainable levels. This would benefit current customers, but would penalise future customers. Alternatively, it could result in a failure to deliver environmental, public health or customer service benefits. Customers would pay lower charges if the rate of return was set too low, but they would also receive a poorer service.

If the Commissioner set the allowed rate of return at too high a level, customers would pay more than they needed to. This could act as a disincentive on management to improve the efficiency of the company. This would mean that customers pay more than is necessary in the medium term. Alternatively, the level of outstanding debt could decline significantly relative to the asset value of the company. This would penalise current customers to the benefit of future customers.

Setting an allowed rate of return for Scottish Water

As a public corporation, Scottish Water has only two sources of funds: revenue from customers and new debt. Scottish Water does not borrow directly from the capital markets, nor does it borrow at commercial rates. Scottish Water borrows from the Scottish Consolidated Fund at public-sector borrowing rates.

¹ The Commissioner explained his views on Scottish Water's required financial strength in both his consultation on the methodology for the Strategic Review of Charges 2006-10 and in Volume 7 of the draft determination. Compliance with the financial ratios was shown to be in the long-term interests of customers.

² Guidance issued by Ministers in February 2005. A copy is available on our website www.watercommission.co.uk

Scottish Water does generate surpluses and therefore has retained earnings, which it can invest to achieve the outputs set by the Scottish Ministers. As it does not pay dividends at present, all of the surplus generated can be reinvested for the benefit of current and future customers. These reinvested surpluses have essentially the same properties as retained earnings (a form of equity) in the private sector, except that they are reinvested for the benefit of customers, rather than with the specific aim of generating a higher profit in future.

The Commissioner considered four possible approaches to setting an appropriate rate of return for Scottish Water:

- adopt the Ofwat allowed cost of capital;
- use long-term average real borrowing rates;
- use the discount rate suggested in HM Treasury's 'Green Book'; and
- use a hybrid approach.

The Commissioner examined each in turn and summarised the advantages and disadvantages of each approach.

Ofwat's assessment of the allowed cost of capital

The Commissioner considered whether it would be appropriate to use Ofwat's allowed rate of return. This could potentially have been justified on the grounds that the companies in England and Wales are good comparators for Scottish Water.

In their responses to the Commissioner's methodology consultation, Scottish Water and Water UK argued that it would be appropriate to allow Scottish Water the same rate of return as Ofwat allowed to the companies south of the border. They argued that this would more fairly reflect the opportunity cost of the capital used by Scottish Water. Water UK suggested that Scottish Water could return any excess funds to customers. The Commissioner provided four reasons why he did not accept this argument.

- It was not for the Commissioner to question the price at which the Government has chosen to make capital available to Scottish Water. This would not be consistent with the requirement on him to determine the maximum level of charges consistent with Scottish Water delivering Ministers' objectives at the lowest reasonable overall cost.
- The Commissioner considered that such an approach would not have been consistent with the hard budgetary constraint and continuing challenge to improve efficiency that underpinned his draft determination.
- The Commissioner set out his view that the opportunity cost of capital will vary significantly between investors. He noted that while the Ofwat allowed rate of return may represent the opportunity cost to the marginal next investor in the private sector water industry south of the border, there was no reason to believe that the opportunity cost of Scottish Executive funding is the same.
- The Commissioner also reasoned that retained earnings within Scottish Water belong to Scottish Water's customers. The Commissioner noted that the evidence available suggested that customers wanted certainty in pricing and this would be inconsistent with an opportunity cost approach where the size of a 'dividend' would only be known at the end of a financial year.

The Commissioner also pointed out that the allowed rate of return south of the border had to be sufficient to attract debt and/or equity investment. The water and sewerage companies compete for capital with many other investment choices that are available to providers of capital. Ofwat has a duty to ensure that an efficient company is able to access the capital markets and attract sufficient capital to finance its functions.

In contrast, Scottish Water does not have to compete for capital in the same way. The Commissioner argued that it would not, therefore, be realistic to set an allowed rate of return at or close to the same level as in England and Wales.

Long-term average borrowing rates

Scottish Water currently relies on debt provided by the Government and retained earnings to finance an increase in its asset base. A second possible approach that the Commissioner considered in his methodology consultation was to set an allowed rate of return that was consistent with an average of observed historic real borrowing costs.

The Commissioner discounted this approach for two reasons. Firstly, there is a wide range of maturities and coupons, which would have complicated his assessment of an appropriate rate of return.

Second, the Commissioner was concerned that this approach could overestimate the required rate of return in the medium term, as the premium on longer-term debt is at historic lows. He considered that it would be better to allow for the costs of embedded debt and to make an estimate of the current real cost of debt.

This approach would still have required the Commissioner to set an allowed rate of return for the non-leveraged portion of the RCV. This was likely to become an increasingly important element of Scottish Water's funding. For the reasons set out below, the Commissioner would have reduced the assessed cost of debt to ensure that there was no advantage to funding investment through debt or customer retained earnings.

The Treasury Green Book³

The Commissioner considered using a cost of capital from HM Treasury's Green Book. This is a guide to appraisal and evaluation in the public sector. 'Appraisal' relates to the decision to commit funds to the achievement of objectives and 'evaluation' relates to the assessment of past and present activities. The preface to the 2003 edition of The Green Book states that the guidance "is relevant to all appraisals and evaluations":

"Some central government bodies sell goods or services commercially, including to the government itself. These activities may be controlled by requiring prices to be set to provide a required rate of return (RRR) on the capital employed by the activity as a whole. Government policy is generally to set charges for goods and services sold commercially at market prices, and normally to recover full costs for monopoly services, (including the cost of capital as defined in the Treasury Fees and Charges Guide)."

The 2003 edition of The Green Book reduced the Treasury estimate of the discount rate to 3.5% real.

The 'discount rate' measures 'the rate of social time preference'. The Green Book defines social time preference as "the value society attaches to present, as opposed to future, consumption".

The Commissioner considered setting the allowed rate of return for Scottish Water in line with The Green Book discount rate of 3.5% real. He noted one major advantage of this approach, in that it uses a rate of return that is established by Government and would clearly be sufficient for Scottish Water to fund its efficient operation.

However, the Commissioner was concerned that setting an allowed rate of return at 3.5% real would have been significantly higher than the observed cost of new debt to Scottish Water. This could have had the effect of encouraging Scottish Water to increase its borrowing and may have delayed the necessary improvements in efficiency. The effect of this could have been reduced if the Commissioner regarded the 3.5% real rate as the pre-tax return rather than the post-tax return. The Commissioner decided not to use this approach because he felt that this rate of return was higher than Scottish Water currently needs. As such, it would have been inconsistent with his aim to establish the lowest reasonable overall cost of delivering the objectives of Ministers.

³ 'The Green Book' Appraisal and Evaluation in Central Government, HMSO, 2003.

A hybrid approach

The Commissioner decided to apply a modified version of the weighted average cost of capital (WACC) approach, which is used by regulators of private sector companies⁴. He combined an observed real cost of debt with an estimate of an appropriate rate of return on the customer retained earnings (the equity portion of Scottish Water's RCV) in order to produce an allowed rate of return⁵.

The future real rate of interest on debt for Scottish Water was estimated by looking at an average of the current borrowing rates that Scottish Water faces.

The Commissioner made an allowance for the full cost of embedded debt.

The Commissioner collected information on the real rates offered by government gilts. Similarly, he analysed the premium of Public Works Loans Board rates to government gilts. The real rate on long dated gilts averaged 1.8% during 2004-05. Expected RPI inflation is 2.5%. The premium on public lending is approximately 0.3% to the real return on gilts. This gave an allowed rate of return for Scottish Water's debt of 4.6%. The Commissioner linked prices and the cost of capital to RPI (rather than the CPI measure which was used to inflate operating costs) in order to ensure that Scottish Water was not exposed to funding risks associated with changes in the RPI.

The Commissioner set the pre-tax allowed rate of return on the customer retained earnings at the post-tax allowed rate of return for debt. He expressed a view that it was appropriate for customers to finance a relatively low return on the customer retained earnings. There would consequently be no incentive for Scottish Water to seek to change its current ratio of debt to its RCV. If the return on the customer retained earnings had been greater than the return on debt, Scottish Water would have had an incentive to repay debt. In contrast, if the return on the customer retained earnings had been lower than the return on debt, Scottish Water would have had an incentive to take on more debt.

The allowed rate of return on customer retained earnings is 3.22% nominal⁶.

The Commissioner made a full allowance for the costs of embedded debt.⁷ Specifically, he added the extra interest costs above 4.6% nominal to the cash return on the RCV for each year of the regulatory control period.

Setting the initial RCV

The RCV method of price setting separates the financing of the capital programme into the financing and management costs of investment and the cost of purchasing assets.

The Commissioner set the initial RCV such that if Scottish Water were to meet the terms of its regulatory contract, it would be in a financially sustainable position by the end of the regulatory control period.

The Commissioner calculated the revenue cap by totalling the cash allowed return on the RCV, allowed operating costs, PPP costs, depreciation, the infrastructure renewals charge and taxation. This is illustrated in Figure 22.1.

Figure 22.1: Components of the revenue settlement

Operating costs
PPP charge
Current cost depreciation
Infrastructure renewals charge
Cash return on the RCV ⁸
Embedded debt allowance
Tax
= Calculated revenue

In order to comply with the Commissioner's targeted financial ratios, and given the levels of costs and investment that the Commissioner had allowed, Scottish Water required £1,018.2 million revenue in 2009-10. The Commissioner set the RCV for 2009-10 such that the cash allowed return on the RCV and the allowance for embedded debt was equal to the difference between the required level of revenue and the allowed level of costs.

⁴ This is described in detail in Chapter 18 of Volume 5 of the draft determination.

⁵ This equity (unleveraged) portion of the RCV is equivalent to the Glas Cymru financial buffer.

⁶ 4.6% less the value of the 30% Corporation Tax Shield (1.38% [0.3 x 4.6%]).

⁷ Embedded debt is debt taken out prior to April 2004 that carries a higher coupon than the allowed rate of return.

⁸ Less the current cost working capital adjustment.

The Commissioner divided the allowed cash return on the RCV (net of the embedded debt allowance) by his allowed rate of return of 4.12% (this was based on a 65% gearing ratio, consistent with the financial ratios he used to assess financial sustainability). This equated to an average RCV in 2009-10 of £4,821.8 million.

Allowed for investment in 2008-09 was £633.3 million. The allowed for depreciation and infrastructure renewals charge (IRC) were £230.7 million and £94.0 million respectively. Inflation was assumed to be 2%. This gave an average RCV in 2008-09 of £4,410.2 million.

Allowed for investment in 2007-08 was £593.0 million. The allowed for depreciation and IRC were £211.2 million and £98.3 million respectively. Inflation was assumed to be 2%. This gave an average RCV in 2007-08 of £4,031.0 million.

Allowed for investment in 2006-07 was £534.3 million. The allowed for depreciation and IRC were £187.2 million and £88.6 million respectively. Inflation was assumed to be 2%. This gave an average RCV in 2006-07 of £3,683.8 million.

The Commissioner adjusted the average RCV in 2006-07. This reflected the allowed for investment during 2006-07 and the reduction in the RCV which was included to compensate customers for the overhang from Quality and Standards II⁹. This removed £274.5 million¹⁰ from the initial RCV. The Commissioner also adjusted capital spending in each year to take account of the efficiencies that were erroneously claimed by the former East of Scotland Water Authority in 2001.

The impact of this investment and the other adjustments that the Commissioner made are summarised in Table 22.1.

Table 22.1: Calculation of the initial RCV (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Opening RCV	£3,519.8 m	£3,847.8 m	£4,214.3 m	£4,606.1 m
Inflation adjustment	£70.4 m	£77.0 m	£84.3 m	£92.1 m
New investment	£534.3 m	£593.0 m	£633.3 m	£689.5 m
Depreciation	£187.2 m	£211.2 m	£230.7 m	£252.3 m
Infrastructure renewals charge	£88.6 m	£91.2 m	£94.0 m	£96.8 m
Disposal of assets	£1.0 m	£1.1 m	£1.1 m	£1.1 m
Closing RCV	£3,847.8 m	£4,214.3 m	£4,606.1 m	£5,037.5 m
Year average	£3,683.8 m	£4,031.0 m	£4,410.2 m	£4,821.8 m

The Commissioner concluded that an initial RCV of £3,794.4 million (£3,519.8 million plus £274.5 million) was consistent with Scottish Water achieving financial sustainability.

To ensure that his conclusion was reasonable, the Commissioner then compared his initial RCV against a number of benchmarks¹¹.

The Commissioner noted that some of his comparisons tended to favour Scottish Water (volumes, customer numbers and revenue-based comparisons), while some appeared to disadvantage Scottish Water (historic cost assets). However, the Commissioner expressed a view that his analysis was broadly consistent with the approximate £3.8 billion initial RCV that was required to ensure that Scottish Water would be in a financially sustainable position at the end of this regulatory control period.

The results of the Commissioner's analysis are summarised in Table 22.2. This shows how reliable the comparison is, as measured by the average R² of the correlation. The closer the R² value is to 100%, the more the Commissioner could rely on the ratio.

⁹ The Commissioner discussed the extent of the investment overhang from Quality and Standards II in Chapter 6 of Volume 5 of the draft determination. He also discussed how he had taken account of the unsubstantiated efficiencies claimed by East of Scotland Water Authority.

¹⁰ £274.5 million is the value of the outputs remaining to be delivered from Quality and Standards II.

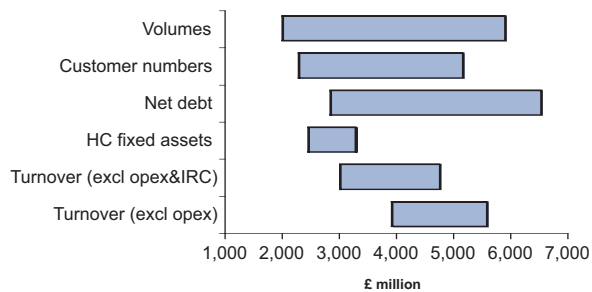
¹¹ Full details of these comparisons are presented in Chapter 19 of Volume 5 of the draft determination. Chapter 19 also sets out alternative methods that the Commissioner considered.

Table 22.2: Range of RCVs implied by each comparator approach

	Minimum	Maximum	Average R ²
Revenue (minus operating costs)	£3.9bn	£5.6bn	97.2%
Revenue (minus operating costs & IRC)	£3.0bn	£4.8bn	95.8%
Historic cost fixed assets	£2.5bn	£3.3bn	97.1%
Net debt	£2.9bn	£6.5bn	61.1%
Customer numbers	£2.3bn	£5.2bn	84.8%
Volumes	£2.0bn	£6.0bn	75.4%

The Commissioner noted that there was no single RCV that satisfied each of the comparisons. Indeed, the two comparisons with the strongest relationship (revenue (minus operating costs) and historic cost fixed assets) produced ranges that did not overlap. Figure 22.2 shows the ranges for each of the comparisons.

Figure 22.2: Ranges implied by comparators for Scottish Water's initial RCV at 31 March 2006

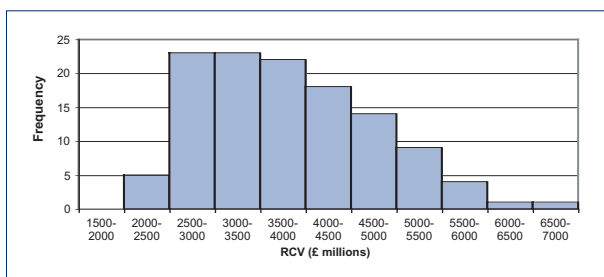


This analysis suggested an initial RCV of £3,814 million. Table 22.3 illustrates this analysis. The Commissioner considered that this was fully consistent with the approximate £3.8 billion initial RCV required for financial sustainability for Scottish Water at the end of the regulatory control period.

Table 22.3: Implied RCV for Scottish Water, for each method of comparison

Year-end 2005-06 RCV	Turnover (excluding operating expenditure)		Turnover (excluding operating expenditure and IRC)		HC fixed assets		Net debt		Customer numbers		Volumes		Average
	2002-03	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03	2003-04	
Anglian	£4,994.5m	£4,903.0m	£3,616.2m	£3,642.9m	£3,223.3m	£3,308.1m	£3,159.3m	£2,938.8m	£3,948.0m	£3,971.6m	£4,635.6m	£4,451.1m	£3,899.4m
Dwr Cymru	£4,933.8m	£5,599.2m	£4,270.9m	£4,783.4m	£2,779.7m	£2,891.8m	£3,051.6m	£2,899.1m	£3,795.5m	£4,025.9m	£4,164.5m	£4,153.7m	£3,945.8m
Northumbrian	£5,224.3m	£5,552.2m	£4,190.9m	£4,578.8m	£2,770.9m	£2,828.4m	£4,141.5m	£4,065.4m	£3,004.1m	£3,075.7m	£3,243.4m	£3,138.5m	£3,817.8m
Severn Trent	£4,379.4m	£4,550.4m	£3,319.7m	£3,546.1m	£2,743.2m	£2,820.6m	£5,239.6m	£4,943.4m	£2,685.0m	£2,745.9m	£3,322.9m	£3,001.4m	£3,608.1m
South West	£5,111.1m	£5,352.1m	£3,781.1m	£4,076.9m	£2,519.9m	£2,625.7m	£4,505.6m	£4,159.0m	£5,015.6m	£5,183.8m	£5,921.5m	£5,609.6m	£4,488.5m
Southern	£4,281.6m	£4,578.5m	£3,183.3m	£3,568.4m	£2,482.3m	£2,561.5m	£4,517.8m	£2,867.8m	£3,336.5m	£3,405.6m	£3,808.1m	£3,687.9m	£3,523.3m
Thames	£3,942.2m	£4,406.1m	£3,035.4m	£3,443.6m	£2,995.7m	£2,958.3m	£5,477.1m	£5,050.2m	£2,310.2m	£2,328.2m	£2,202.3m	£2,027.0m	£3,348.0m
United Utilities	£4,560.6m	£4,631.4m	£3,585.2m	£3,615.6m	£2,884.5m	£2,687.6m	£5,372.4m	£4,566.9m	£3,550.8m	£3,551.5m	£3,944.2m	£3,663.5m	£3,884.5m
Wessex	£4,355.9m	£4,460.4m	£3,278.1m	£3,486.6m	£2,895.3m	£2,923.8m	£3,715.4m	£3,558.6m	£3,864.2m	£3,961.0m	£4,331.9m	£3,968.1m	£3,733.3m
Yorkshire	£4,387.9m	£4,421.8m	£3,312.2m	£3,445.1m	£2,697.9m	£2,751.3m	£6,547.0m	£6,085.7m	£2,988.2m	£3,048.5m	£3,474.5m	£3,337.1m	£3,874.8m
Average	£4,617.1m	£4,845.5m	£3,557.3m	£3,818.7m	£2,799.3m	£2,835.7m	£4,572.7m	£4,113.5m	£3,449.8m	£3,529.8m	£3,904.9m	£3,703.8m	£3,812.3m

Figure 22.3 illustrates that the most common results of the Commissioner's comparisons were between £2.5 billion and £3.5 billion. Results that were higher than £5 billion were relatively rare, although they were sufficient to increase the average.

Figure 22.3: Frequency of RCV occurrence using all means of comparison

Implications of using the financial ratios to set the initial RCV

The Commissioner considered that it was important to review the implications of his move towards the RCV method of price setting.

At its price review in 2004, Ofwat used ratios to measure the financial strength of the companies south of the border. These ratios are set out in Table 22.4¹².

Table 22.4: Ofwat 2004 price determinations – key financial ratios

Ratio	Formula	Target ¹³
Cash interest cover	(net operating cash flow ¹⁴ – tax)/interest expenses	Around 3
Adjusted cash interest cover	(net operating cash flow – depreciation – infrastructure renewals charge – tax)/interest expenses	Around 1.6
Funds from operations/debt	(net operating cash flow – tax – interest)/net debt	Greater than 13%
Retained cash flow/debt	(net operating cash flow – tax – interest – dividends)/net debt	Greater than 7%
Gearing	Net debt/RCV	Less than 65%

Ofwat had used a slightly different suite of ratios at its 1999 price review. The Commissioner noted that his advice to the Scottish Ministers in the Strategic Review of Charges 2002-06 sought to be consistent with the two ratios outlined in Table 22.5.

¹² We do not use Ofwat's Adjusted Cash Interest Cover ratio using maintenance expenditure as historically we have found this information to be of poor quality.

¹³ Where a ratio is required to be 'around' a particular figure, we have assumed that it should be within a range of plus or minus 25% of the targeted value.

¹⁴ Net operating cash flow is equal to operating profit plus depreciation plus infrastructure renewals plus changes in working capital.

Table 22.5: Ofwat 1999 price determinations – key financial ratios

Ratio	Formula	Target
Debt payback (EBITDA)	Net debt/net operating cash flow	Maximum 5 years
Debt payback (EBDA)	(Net debt)/(net operating cash flow – interest – tax)	Maximum 7 years

The Commissioner expressed a clear view that it was in customers' interests to ensure that Scottish Water was financially sustainable. His view was that the ratios adopted by Ofwat represented a good measure of financial sustainability. This explained his decision to set the initial RCV at a level that would allow Scottish Water, if it meets the terms of its regulatory contract, to comply with all of the cash-based financial ratios.

The Commissioner considered that it was important to understand the factors that affected the calculated value of all of the ratios. He explained that depreciation levels do affect the cash interest cover ratio, but do not impact on the adjusted cash interest cover ratio. The Commissioner noted that the factors which impact on all of the ratios are the level of revenue, the level of operating costs incurred, the level of tax and the size of the capital programme.

The allowed for cash return impacts on the level of revenue that is calculated by the model. The size of the capital programme impacts on the RCV in each year of the regulatory control period and consequently impacts on the allowed for cash return.

The Commissioner further noted that the overall level of prices was sensitive to the level of tax that was expected and to the level of operating cost, although neither of these had any effect on the allowed for cash return.

In setting charge caps, the Commissioner made adjustments to the modelled answer in order to ensure that:

- the financial strength of Scottish Water improved over the regulatory control period;

- prices remained broadly stable during the regulatory control period; and
- prices were not cut in an unsustainable way that would have led to real increases in charges for customers in future years.

These manual interventions allowed the Commissioner to meet the terms of the Ministers' Guidance.

In altering the revenue level calculated by the model the Commissioner sought to:

- ensure that revenue was no higher than it needed to be (in other words no higher than that required to ensure that Scottish Water was compliant with the financial ratios);
- ensure that neither current nor future customers were disadvantaged;
- smooth the revenue profile; and
- minimise the impact of rebalancing from household to non-household customers.

Impact on customers' bills

The slow delivery of the capital programme during the 2002-06 regulatory control period has resulted in a lower level of debt than expected. The Commissioner explained that, in theory, this could have allowed him to increase the real reduction in prices that customers could expect. However, the capital outputs still have to be delivered and their delivery would have necessitated real increases in charges in the later years of the regulatory control period. The Commissioner noted that this would have been inconsistent both with the Ministerial Guidance and with the clear preferences that customers had expressed to him at public meetings.

The Commissioner compared the revenue caps used for setting prices in the draft determination with the unadjusted modelled answer. This analysis is shown in Table 22.6.

Table 22.6: Adjusted and unadjusted revenue caps

	2005-06	2006-07	2007-08	2008-09	2009-10	Comments
Required revenue formula	£965.1m	£852.9m (-11.62%)	£900.7m (5.60%)	£947.3m (5.18%)	£1,001.2m (5.90%)	- KPIs ¹⁵ breached in all years - PEL ¹⁶ breached in year 4 - Large impact on year-on-year prices
Minimum revenue required to meet cash KPIs in all years	£965.1m	£918.9m (-4.78%)	£913.3m (-0.61%)	£973.0m (6.54%)	£1,036.1m (6.49%)	- KPIs compliant - PEL not breached - Still large impact on year-on-year prices
Draft determination	£965.1m	£982.7m (1.82%)	£1,005.5m (2.33%)	£1,009.2m (0.36%)	£1,018.2m (0.90%)	- KPIs compliant - PEL not breached - Smooth revenue profile

This analysis assumed that the Commissioner set prices at the lowest level each year that is consistent within the cash-based ratios.

Cash allowed return sensitivity analysis

We outlined above the responses that the Commissioner received from Scottish Water and Water UK to his proposed method of assessing the allowed rate of return for Scottish Water. The Commissioner pointed out, however, that even if he had accepted their arguments and had set a higher allowed rate of return, this would not have had an impact on the revenue that he would have considered necessary from customers. This is because the implication of Scottish Water's arguments would have been to require him to set a lower initial RCV such that Scottish Water would have had enough revenue (as calculated by the model) in 2009-10 to comply with the key financial ratios.

In this circumstance, the Commissioner explained that he would have sought to increase or reduce the revenue calculated by the model to the minimum level that was consistent with delivering the objectives set out in the Ministerial Guidance and compliance with the key financial ratios. The Commissioner's conclusion on the required level of revenue from customers would not have changed, even if he had set a higher rate of return.

If the Commissioner had set a lower allowed rate of return, this would have increased the initial RCV that he would have had to set.

Table 22.7 compares the modelled answer and an adjusted modelled answer if the allowed rate of return had been set at 5.1% real, post-tax.

Table 22.7: Adjusted and unadjusted modelled answer with 5.1% real post-tax rate of return

Return on equity	RCV	Revenue			
		2006-07	2007-08	2008-09	2009-10
0.72% real post-tax plus embedded debt adjustment (draft determination)	£3.79bn	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
5.1% real post-tax plus with no embedded debt adjustment	£1.85bn	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Variance between scenarios		£0m	£0m	£0m	£0m

Level and mix of investment

The Commissioner explained that the level and mix of investment had a material impact on the level of revenue that Scottish Water required from customers to comply with the key financial ratios. Table 22.8 illustrated the impact of different assumptions on the level of prices.

¹⁵ Key performance indicators, a set of financial ratios used to measure financial sustainability.

¹⁶ Public expenditure limit.

Table 22.8: Impact of size, profile and mix of investment programme on customers' bills

Total investment	Profile	Revenue ¹⁷				
		2006-07	2007-08	2008-09	2009-10	Average annual increase
£2.0bn (2005-06 prices)	Increasing 460-493-508-540	£969.8m	£969.8m	£979.3m	£984.1m	0.49%
	Flat 500-500-500-500	£972.8m	£980.6m	£988.4m	£996.3m	0.80%
	Decreasing 540-508-493-460	£975.7m	£986.4m	£997.3m	£1,008.2m	1.10%
£2.3bn (2005-06 prices)	Increasing 529-566-584-621	£979.5m	£994.2m	£1,009.1m	£1,024.3m	1.50%
	Flat 575-575-575-575	£982.8m	£1,000.9m	£1,019.3m	£1,038.1m	1.84%
	Decreasing 621-584-566-529	£986.2m	£1,007.8m	£1,029.9m	£1,052.4m	2.19%
£2.6bn (2005-06 prices) ¹⁸	Increasing 598-640-660-702	£994.0m	£1,023.8m	£1,054.5m	£1,086.2m	3.00%
	Flat 650-650-650-650	£995.5m	£1,026.8m	£1,059.2m	£1,092.5m	3.15%
	Decreasing 702-660-640-598	£996.9m	£1,029.8m	£1,063.8m	£1,098.9m	3.30%

Depreciation and IRC charges

The Commissioner noted that depreciation and IRC did not affect all of the key financial ratios. If depreciation and IRC had been set at a higher level in 2009-10, the Commissioner would have set a lower initial RCV since he would not have required the cash allowed return on the RCV to be as large. Correspondingly, a lower depreciation or infrastructure renewals charge in 2009-10 would have led to a higher initial RCV. The adjusted prices would not, however, have been affected by this change.

Table 22.9: Impact of depreciation (by changing opening MEAV¹⁹) on initial RCV

2005-06 opening MEAV	RCV	2006-07	2007-08	2008-09	2009-10
£2.49bn (draft determination)	£3.79bn	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
£1.99bn	£4.49bn	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Variance between scenarios		£0m	£0m	£0m	£0m

Initial RCV

If the Commissioner had increased the initial RCV, the adjusted answer for the first three years of the regulatory control period would not have changed. However, he would have had to make a downward adjustment to the modelled answer in the final years of the regulatory control period as the model would have calculated a level of revenue that was greater than necessary to comply with the key financial ratios.

If the Commissioner had reduced the initial RCV, the adjusted answer for the first three years of the regulatory control period would not have changed. However, he would have had to make an upward adjustment to the modelled answer in the final year of the regulatory control period as the model would have calculated a level of revenue that was lower than necessary to comply with the key financial ratios.

The Commissioner's analysis is illustrated in Table 22.10.

¹⁷ For simplicity, the Commissioner assumed equal annual increases for each year.

¹⁸ Tariffs were affected by the public expenditure limit.

¹⁹ Modern equivalent asset value.

Table 22.10: The impact of changing the initial RCV

RCV	Scenario	2006-07	2007-08	2008-09	2009-10
£5.0bn	Unadjusted modelled answer	£903.0m	£967.3m	£1,026.7m	£1,071.4m
	Financiability & phasing adjustment	£79.6m	£38.2m	-£17.5m	-£53.2m
	Adjusted modelled answer	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
£3.80bn (draft determination)	Unadjusted modelled answer	£852.9m	£916.2m	£974.5m	£1,018.2m
	Financiability & phasing adjustment	£129.7m	£89.3m	£34.7m	£0m
	Adjusted modelled answer	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
£2.0bn	Unadjusted modelled answer	£778.3m	£840.1m	£896.9m	£939.1m
	Financiability & phasing adjustment	£204.4m	£165.4m	£112.3m	£79.2m
	Adjusted modelled answer	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m

Rate of inflation

If the Commissioner had changed his assumptions on the rate of inflation, both the modelled and the adjusted modelled answers would have changed. A higher rate of inflation would tend to have made it easier to comply with cash flow based ratios which involve interest costs. This is because interest costs are fixed and become relatively easier to pay back if inflation is high.

The Commissioner also noted that a higher inflation environment would also mean that the actual nominal increase in prices to customers would have been higher, even if, in real terms, they would still have been decreasing.

The Commissioner's illustration of the real and nominal impact on prices if the rate of inflation were 10% is shown in Table 22.11.

Table 22.11: Real and nominal revenue increase if the rate of inflation were 10%

		2006-07	2007-08	2008-09	2009-10	Year-on-year change
% increase with current inflation assumptions ²⁰	Nominal	1.82%	2.33%	0.36%	0.90%	1.35%
	Real	-0.68%	-0.17%	-2.14%	-1.60%	-1.15%
Percentage increase with inflation at 10% ²¹	Nominal	5.37%	5.37%	5.37%	5.37%	5.37%
	Real	-4.63%	-4.63%	-4.63%	-4.63%	-4.63%

Conclusion

The Ministerial Guidance required the Commissioner to ensure that Scottish Water had sufficient resources to fund the delivery of the 'essential' capital programme, irrespective of the impact of this level of capital spending on customers' bills. The Guidance also made it clear that, if the essential programme could be delivered without a real increase in customers' bills, the next priority was to establish a regime of stable prices. The Guidance explained the Ministers' intentions clearly: there should be no reduction in customers' bills if that reduction required increases in real terms in subsequent years.

The Guidance also looked to the longer term by requiring Scottish Water's financial strength to be at least maintained over the regulatory control period and, if possible, its financial strength improved.

In the draft determination, the Commissioner moved towards the RCV method of price setting. This required him to set an initial RCV and an appropriate allowed rate of return. The initial RCV was set at a level that was broadly consistent with a broad range of comparisons. The allowed rate of return reflected the likely cost of borrowing provided by the Scottish Executive. The allowed cash return on the RCV was set at a level that would ensure that Scottish Water would comply with all of the Ofwat cash-based financial ratios by the end of the 2006-10 regulatory control period.

²⁰ CPI at 2%, COPI at 3% and RPI at 2.5% per annum.

²¹ CPI, COPI and RPI at 10% per annum.

The allowed cash return on the RCV covers Scottish Water's costs of financing and managing its investment in its assets. In most cases, changes in the factors that influence this element of the process of setting maximum charges would not have an impact on the actual maximum charges that the Commissioner set in this draft determination. The exception to this is the size, profile and mix of the capital investment programme.

As a consequence, the Commissioner noted that some apparently important issues (such as the cost of capital and the treatment of embedded debt), which can be contentious south of the border, have not had an impact on the price that customers in Scotland will actually pay. This reflects both the Commissioner's statutory duty to set maximum charges at a level that is consistent with Scottish Water delivering the Ministers' objectives at the lowest reasonable overall cost and the ministerial intention to allow Scottish Water continued access to sufficient cheap government borrowing.

Chapter 23:

New information since the draft determination was published

Introduction

In the previous chapter we outlined how, in the draft determination, the Commissioner had proposed to move towards a regulatory capital value (RCV) approach to setting charges. He set an initial RCV such that Scottish Water would comply with all of the cash-based financial ratios that Ofwat uses – if it met the terms of its regulatory contract. The Commissioner used a rate of return that was consistent with his obligation to set charges at the lowest reasonable overall cost of delivering ministerial objectives given the public borrowing that was available.

The RCV approach identifies capital, operating and maintenance costs separately, in order to ensure that each year customers pay the full economic cost of the provision of a water and sewerage service.

In this chapter we examine new information about the appropriate financing costs and ratios that has become available since the Commissioner published his draft determination.

There are four main sources of new information:

- Scottish Water's 2004-05 Annual Return;
- Postcomm's consultation on Royal Mail's price caps;
- Ofcom's approach to risk in the assessment of the cost of capital; and
- further interest rate decisions made by the Bank of England.

We discuss each of these in turn.

Annual Return

The Commissioner asked Scottish Water to provide information about the value of its asset base using the modern equivalent asset value (MEAV) approach in its

2004-05 Annual Return. The Commissioner had not previously asked for this information. However, he wanted to begin the process of bringing Scottish Water's reporting in its regulatory accounts fully into line with the approach that the companies south of the border use when completing their regulatory accounts. Scottish Water had previously valued its assets in its Annual Returns using the equivalent asset replacement cost (EARC) methodology.

Information about the MEAV is an important element of the RCV method of price setting as it affects the depreciation that is allowed for customers' charges (ie that part of investment that is funded from revenue).

The definition of the MEAV and EARC approaches to asset valuations are similar. Scottish Water had informed the Commissioner that it expected the MEAV and EARC asset values to be broadly the same. The Commissioner therefore used the EARC as a proxy for the MEAV.

In its Annual Return, Scottish Water was unable to provide a full MEAV of its existing assets. Scottish Water reported that it had sampled some of its assets and this had suggested that its non-infrastructure assets could be undervalued. It further reported that the sample was not sufficiently large to develop a robust MEAV for its entire asset base. Scottish Water has therefore suggested that we should use the EARC that was provided in the 2004-05 Annual Return.

Scottish Water has committed to calculate a full MEAV of its asset base during the 2006-10 regulatory control period.

We estimated the MEAV at April 2006 using the information that Scottish Water provided in its 2004-05 Annual Return. We compared our estimate with the asset value that was provided by Scottish Water. This is illustrated in Table 23.1.

Table 23.1: Comparison of asset values (April 2006)

	Draft determination	Update to draft determination asset values using the 2004-05 Annual Return
Very short	£34m	£25m
Short	£273m	£111m
Medium	£560m	£744m
Medium/Long	£153m	£90m
Long	£1,254m	£1,389m
Non-depreciating	£214m	£208m
Total	£2,488m	£2,566m

Scottish Water's 2004-05 Annual Return suggests a slightly higher opening asset value. The information in the Annual Return would also lead us to revise the mix of assets such that Scottish Water's asset base would, on average, have a longer life than that which was used at the draft determination. The net effect of these two changes would be a reduction of nearly 19% in the annual depreciation that we would allow for in calculating Scottish Water's revenue.

Postcomm's consultation on Royal Mail's price caps

In his methodology consultation, the Commissioner outlined the different options that could be used to calculate an initial RCV for Scottish Water. At that time, there was no precedent for establishing an initial RCV for a public sector monopoly.

Postcomm has now decided to set prices relative to the regulatory asset base (RAB) of the Royal Mail. The RAB is essentially the same as the RCV.

Postcomm published its draft determination around the same time as the Commissioner published his determination. In *2006 Royal Mail price and service quality review: initial proposals*, Postcomm proposed that it should set the Royal Mail's initial RAB on the basis of the MEAV of the Royal Mail's tangible fixed assets. It argued that this requires customers only to remunerate an 'efficient' asset base. In a properly competitive market, market participants would invest only in the assets that are necessary to provide the required level of service. Postcomm recognises that a more accurate efficient asset valuation would require an assessment of the efficient optimal asset base¹.

It is important to note that Royal Mail's asset base is much less complex than that of a water and sewerage provider. Its investment in fixed assets will also be more modest. The Commissioner's analysis in the draft determination suggested that an initial RCV would have been much lower based on an asset valuation.

Postcomm has set the Royal Mail's allowed rate of return in line with its assessment of what is an appropriate market rate. It set the allowed rate of return based on a review of the equity risk premiums that are used by the economic regulators of the private sector utilities in the UK. This is consistent with the UK Government's commitment to treat Royal Mail like "*any other commercial company*". It would, however, have been inconsistent with the regulatory framework (the lowest reasonable overall cost of delivering the Ministers' objectives) within which we have to take our decisions.

Postcomm's review of Royal Mail addresses a number of the same issues that the Commissioner had to address in his draft determination. Our review of Postcomm's approach suggests that the differences can be explained by the different regulatory and governance framework and by the differences in the industry (people intensive rather than asset intensive). As such, we have not changed our approach as a result of the outcome of the Postcomm draft determination.

¹ This is similar to the depreciated optimised replacement cost, which the Commissioner discussed in Chapter 8 of Volume 3 of his methodology consultation.

Ofcom's approach to risk in the assessment of the cost of capital

In August 2005, Ofcom published further information about its proposed approach to assessing an allowed rate of return for BT².

Much of the content of this paper is not directly comparable with the situation in regulating Scottish Water. For example, Ofcom discusses valuing 'real options', which are of particular relevance in an industry that is dominated by technology change.

Ofcom assumed a real risk-free rate of 2%. This is broadly in line with the 1.8% that the Commissioner used in his draft determination. In addition, the Commissioner allowed in full for the costs of embedded debt.

Further interest rate decisions by the Bank of England

The Commissioner calculated a rate of return that reflected his assessment of current market rates. He also allowed in full for the cost of Scottish Water's embedded debt. Some of this embedded debt reflected very much higher interest rates.

The Commissioner outlined his views on the rate of return in his WIC 59 letter³. At that time there was considered to be a clear upward pressure on interest rates. The Bank of England minutes of February 2005 indicated that the Bank had decided to hold interest rates at 4.75% by a majority of eight to one. The 'one' voted in favour of a rise.

In August, the Bank of England cut interest rates to 4.5%. Interest rates are therefore lower than when the Commissioner made his assessment of current rates. Despite this cut, and the increasing number of calls for further cuts in interest rates, we have decided not to lower the Commissioner's estimate of interest rates. Scottish Water may benefit from this assumption.

Summary

In this chapter we have reviewed the new information concerning financing costs and ratios that has become available since the Commissioner published his draft determination. We have concluded that there is no compelling reason to alter the financial assumptions that the Commissioner made. On balance, our decision not to change these financial assumptions will benefit Scottish Water.

In our view, the Commissioner's approach was broadly consistent with that of other regulators – especially when account is taken of different governance and industry frameworks.

² Ofcom, *Approach to risk in the assessment of the cost of capital*, August 2005.

³ Sent to Scottish Water on 3 March 2005.

Chapter 24:

Scottish Water's representations

Introduction

In the draft determination, the Water Industry Commissioner set out his views on the financial ratios that Scottish Water should achieve if it is to be financially sustainable. In Volume 5 of the draft determination, he explained the move towards the RCV method of price setting and discussed his assumptions on depreciation, corporation tax and the rate of return.

Scottish Water's representations commented on a number of aspects of the Commissioner's assumptions on finance, borrowing and tax. In this chapter we summarise these representations and set out our understanding of the key points that Scottish Water made¹.

Scottish Water's representations covered the allowed cost of debt, the cost of equity, the calculation of the allowed rate of return and the assessment of Scottish Water's embedded debt².

The cost of debt

Scottish Water argued that it would not be appropriate to use 4.6% (nominal, pre-tax) to calculate Scottish Water's future interest costs or the return required on the RCV.

To support this view, Scottish Water cited historical information on real interest rates, and borrowing inflexibility.

With regard to the Commissioner's assumption on real interest rates, Scottish Water noted:

*"Calculating the allowed return on debt based on a review of real interest observed on long term gilts in one year, 2004-05, is not of sufficient duration to provide a meaningful analysis of interest rate movements, particularly where the analysis forms the basis of interest projections out to 2010."*³

Scottish Water provided information which suggested that the average real interest rates on long-term gilts between 1998-99 and 2005-06 has been 2.24%. Scottish Water's analysis led it to reach the following conclusion:

*"Taking the average real interest rate on long-term gilts in the period 1998 to 2005 and applying RPI at 2.5%, and a risk premium of 0.3%, would suggest that the real interest rate should be set at least at 2.6% (nominal 5.1%)."*⁴

Scottish Water also noted that the cost of debt may be even higher since there was a risk that future interest rate could rise if the UK Government had to borrow more to fund public expenditure. Scottish Water referred to a letter it had received from the Scottish Executive in response to questions that Scottish Water had raised about the future cost of borrowing.

Scottish Water noted that it is not allowed to anticipate interest rate movements or to borrow in advance of need. Scottish Water also stated that the water and sewerage companies in England and Wales have greater flexibility than Scottish Water.

The cost of capital

Scottish Water considered that the Commissioner's approach to calculating its cost of capital was inconsistent with regulatory practice elsewhere in the UK and worldwide.

Scottish Water presented a comparison of the allowed rates of return from different public sector bodies in the UK, Ireland and Australia. This showed that allowed rates of return ranged between 6.1% and 8.5%. Scottish Water also suggested that regulators had generally set an allowed rate of return that was consistent with a market-based cost of capital.

¹ Scottish Water's full representations are available on our website.

² Scottish Water's embedded debt related to all outstanding loans (government and non-government) at 31 March 2004.

³ Scottish Water – "Scottish Water's response to the draft determination" (September 2005), page 139

⁴ Ibid., page 140.

Scottish Water claimed that the regulators' explanations of their assessments of the allowed rate of return were consistent with the views that Scottish Water had expressed in its response to the Commissioner's methodology consultation. Scottish Water's views were that in setting the cost of capital, the regulator should aim:⁵

- *“To ensure the financeability of the regulated company.*
- *To ensure that prices reflect economic costs of service provision.*
- *To encourage efficient levels of consumption.*
- *To promote competition.”*

Calculation of the allowed rate of return

Scottish Water stated that there was an inconsistency in the way in which the allowed for rate of return had been calculated in the draft determination. It noted that the method the Commissioner had used allowed for inflation in both the allowed rate of return and the RCV. Scottish Water considered that the effective allowed rate of return that was calculated by the financial model is significantly higher than that which was stated in the draft determination.

Embedded debt allowance

Scottish Water stated that it provided information to the Commissioner⁶ on the actual interest costs of its embedded debt. Scottish Water noted:

“This information was not used in the Draft Determination, which instead calculated a theoretical cost by allocating the embedded debt to interest rate bands, and then applying an average rate to each band. This results in the embedded debt allowance being understated by £5.1 million over the 2006-2010 period.”⁷

⁵ Ibid., page 141.

⁶ Scottish Water's second draft business plan.

⁷ Scottish Water's response, op. cit., page 141.

⁸ Modern equivalent asset value.

⁹ Equivalent asset replacement cost.

Current cost depreciation

The allowance for current cost depreciation of non-infrastructure assets is an important element when calculating the required level of revenue under the RCV method of price setting. This allowance reflects the extent to which customers pay from revenue for the use that is made of above-ground assets. The RCV method of price setting requires an assessment of the value of current non-infrastructure assets on an MEAV basis⁸. Scottish Water's representations suggested that the Commissioner's approach was incorrect.

Scottish Water noted that it had conducted a survey to assess the modern equivalent value of its assets. Scottish Water stated that the results of this study indicated that a proportion of its non-infrastructure assets were undervalued. Scottish Water noted that the survey information was insufficient to calculate the MEAV of all of its non-infrastructure assets. As such, Scottish Water suggested that its current 2004-05 Annual Return EARC⁹ value should be used as a proxy for its MEAV.

Asset additions

The allowed for level of depreciation will also increase to reflect new additions to the asset base. In setting prices, the regulator allocates new capital expenditure to different asset life categories and calculates the increase in the level of depreciation that results. Scottish Water stated that the depreciation charge on additional capital expenditure in the Commissioner's draft determination was lower than that calculated in its second draft business plan. Scottish Water asserted that this difference was due to the fact that the draft determination apportioned a higher amount of investment to medium and long-life assets.

Scottish Water noted:

“If the Q&S3 capital forecast in the Draft Determination were allocated to asset life categories in proportion directly consistent with those set out in our Second Draft Business Plan, current cost depreciation on new additions would be £13.9 million higher over the 2006-10 period.”¹⁰

The infrastructure renewals charge

The infrastructure renewals charge (IRC) recognises the annual cost of using Scottish Water’s underground assets. In its representations, Scottish Water argued that the draft determination had understated the IRC in the following ways:

- No long-term view had been taken of IRC.
- Some of the explanatory factors that were used in the draft determination have no direct impact on the level of capital maintenance. The draft determination also omitted other factors including those that are unique to Scotland.
- Ofwat’s final determinations increased the allowed for IRC by 37% relative to the previous regulatory control period. As such, comparisons with the IRC of the companies south of the border in 2003-04 did not represent a sound basis for forecasting.
- The IRC of some water and sewerage companies is artificially depressed by the unwinding of accruals.
- Independent studies suggested that Scottish Water’s IRC should be approximately £114 million to £221 million.
- The IRC should reflect the average level of expenditure that is required to maintain infrastructure assets, without any loss in their value, over the next 15 to 20 years.
- The IRC should be broadly equal to the IRE over a 15-20 year period, not necessarily in the short term.

¹⁰ Scottish Water’s response, op. cit., page 137.

¹¹ ‘Specific’ are those provisions, charged to the Profit and Loss, which can be considered as a deductible expense. Unlike specific provisions, ‘general’ provisions cannot be claimed as a deductible expense for tax purposes. As such, these provisions have to be added back to the operating profit in order to calculate corporation tax.

Tax

Scottish Water argued that its tax liability had been understated in the draft determination.

The treatment of balance sheet provisions for tax purposes

Scottish Water considered that the Commissioner should not have treated all balance sheet provisions as ‘specific’¹¹ in the draft determination’s financial model. Scottish Water’s representations included a table which showed how provisions had been classified in the second draft business plan (reproduced as Table 24.1).

Table 24.1: Classification of balance sheet provisions for tax purposes

Item	Provision type
Non-domestic bad debt provision	Specific
Domestic bad debt provision	General
Reorganisation provision – severance	Specific (only for the element which is paid within nine months of the financial year end)
Reorganisation provision –pension costs (compulsory added years and strain on funds)	General
Other provisions	General

Scottish Water stated that Her Majesty’s Revenue and Customs permitted its non-household bad debt provision to be classified as specific as the *“provision relates to bad debt balances on individual customers’ accounts”*. It noted that it could not classify household bad debt provisions as specific because the councils held the information on individual customer accounts.

Scottish Water also stated that provisions for severance costs associated with restructuring can only be treated as specific if the amount is paid within nine months of the financial year end.

Scottish Water concluded that the draft determination:

*“understates Scottish Water’s tax liability by £49.6 million, or 88% over the period”.*¹²

Special pension contributions

Scottish Water’s representations noted that the Income and Corporation Act 1988 provided that in the event that special pension contributions exceed standard employer contributions, the excess amount can only be claimed as a deduction from profit over a number of years.

Scottish Water argued that:

*“the Draft Determination tax calculations do not take account of this requirement. As a result, taxable profits are understated in the review period. In the Second Draft Business Plan we forecasted the impact on taxable profits at around £20m over the 2006-10 period”.*¹³

Capital allowances on work in progress

Scottish Water noted that it is currently reviewing how it claims capital allowances on commissioned assets, and that it may move towards claiming capital allowances on the capital expenditure that is committed in that year.

Scottish Water stated that the assumptions in the draft determination concerning the percentage of work-in-progress commissioned: significantly increased capital allowances; reduced taxable profits in 2005-06 as a result; and allowed tax losses to be carried forward to the 2006-10 regulatory control period.

Scottish Water stated that the move to this new approach:

*“... has no impact on the total value of allowances claimed over the lifetime of an asset. It can however have a significant impact on the total tax liability arising in a specific period. In this 2006-2010 period, it effectively provides a ‘one off’ benefit, by allowing an additional year’s capital allowances to be claimed in the period”.*¹⁴

The allocation of capital investment on capital allowance pools

In its representations, Scottish Water claimed that:

*“The allocations used in the draft business plan were based on a detailed review of capital investment by asset type. As a result, the allocation of assets to capital allowance pools varied significantly year on year, depending on the nature and profile of capital investment in each year. The Draft Determination financial model assumes that the allocations remain unchanged each year. In practice this would not hold true.”*¹⁵

Scottish Water indicated that it was difficult for it to assess the adequacy of capital allowances in the Commissioner’s draft determination, as no detailed list of capital expenditure by asset type had been provided. Given the importance of capital allowances in calculating tax liability, Scottish Water emphasised that a detailed assessment of capital allowances was needed.

Tax treatment of infrastructure renewals expenditure (IRE)

Currently, the IRC is treated as a deductible expense for tax purposes¹⁶. Scottish Water noted that it was likely that the introduction of International Accounting Standard 16 would require IRE to be added to the long-life capital allowance pool. It noted that in his draft determination the Commissioner had assumed a notional life for IRE of 30 years. Scottish Water noted that the first approach would reduce taxable profits each year in the 2006-10 regulatory control period.

¹² Scottish Water’s response, op. cit., page 144.

¹³ Ibid., page 144.

¹⁴ Ibid., page 145.

¹⁵ Ibid., page 145.

¹⁶ The IRE is also disallowed for capital allowances.

Working capital

Working capital indexation

In its representations, Scottish Water suggested that the financial model that was used to prepare the second draft business plan¹⁷ added working capital indexation in calculating the allowed level of revenue. The draft determination subtracted this adjustment. Scottish Water argued that this adjustment should be added: “... recognising the additional funding requirement resulting from the impact of inflation on working capital balances”¹⁸

Balance sheet assumptions

Scottish Water indicated that the Commissioner's assumptions on working capital were broadly consistent with those used in the second draft business plan. However, Scottish Water noted the following differences:

Trade debtors: Scottish Water indicated that there was a difference in the assumptions concerning trade debtors. Scottish Water also noted that the:

“working capital assumptions on trade debtors will have to be revisited to reflect the profile of charges in the Final Determination, as any variation in revenue can have a significant impact on trade debtor balances”.¹⁹

Other debtors: Scottish Water indicated that it assumed an increasing ‘other debtors’ account in 2007-08 (whereas the draft determination assumed that it would not change) to reflect the existence of an ‘escrow’ deposit. This deposit would protect Scottish Water in the event that the licensed business is unable to pay. Scottish Water noted that holding an escrow account would increase its funding needs.²⁰

¹⁷ Version provided by the Water Industry Commissioner for Scotland.

¹⁸ Scottish Water's response, op. cit., page 142.

¹⁹ Ibid., page 147.

²⁰ Escrow is a legal arrangement whereby money (or other assets) is given to a third party (called an escrow agent) to be held in trust pending a contingency or the fulfilment of a condition or conditions in a contract.

Fixed assets

Quality & Standards II capital additions

In its representations, Scottish Water commented that the draft determination had incorrectly assumed that the figure for the Quality and Standards II overhang of £283 million in its second draft business plan was in outturn prices. Scottish Water noted that the figure was in 2005-06 prices.

Quality and Standards III capital additions

Scottish Water indicated that the Quality and Standards III capital additions that were forecast in the draft determination were materially different from those that it had forecast in its second draft business plan. This difference was reflected in the depreciation charge.

WIC 18 completion projects

Scottish Water stated that there was no specific allowance in the draft determination for WIC 18 projects that were not included in the WIC 18 baseline. Scottish Water stated that its second draft business plan included £14 million in 2006-07 for these projects.

Inflation

In its representations, Scottish Water argued that RPI was a more appropriate measure for inflation than CPI. The use of RPI, it argued, would ensure consistency with Ofwat and other regulators.

Public Private Partnership (PPP)

The following points were made in Scottish Water's representations.

- All costs that are incurred by the PPP company (ie finance fees, advisory fees, project management fees, etc) will need to be recovered by the company when implementing and funding a change.
- The draft determination assumed a ratio of operating cost/capital investment of 2%, whereas Scottish Water's analysis suggested an average ratio that was three times higher (6.5%).

- In the draft determination, the level of service fees to capital expenditure is 14%, whereas Scottish Water's analysis suggests 20%. As such, Scottish Water indicated that the service fees would have to be at least 20% if the capital expenditure were to be fully financed by the PFI company.

Scottish Water also indicated that the service fee would be much smaller if the PPP company was not involved in the capital expenditure. The additional PPP charge would only have to cover site operating costs, future capital maintenance costs and any non-capital costs incurred.

Scottish Water stated that if the PPP companies were to fund the required enhancements, the appropriate service charge would be around £7.2 million. Scottish Water claimed that:

"This must be regarded as the minimum funding required as it has been calculated using ratios from competitively tendered contracts, whereas the contract changes will need to be agreed by negotiation".²¹

Scottish Water also argued that, given the probability that the PFI company would not be able to fund the investment, the entire £66 million capital requirement should be considered as part of its baseline capital programme.

Financing retail separation

Depreciation

Scottish Water argued that the draft determination overstated the depreciation costs of the licensed business by £3.5 million and understated Scottish Water's costs by the same amount.

Cost of debt

Scottish Water stated that it was unable to reconcile the cost of capital used in the financial model with the cost of capital range suggested by the Ernst & Young LLP report²². Scottish Water stated that the Ernst & Young LLP report suggested a post-tax weighted average cost of

capital of between 7.96% and 8.87%, whereas the cost of capital used in the draft determination was lower.

Scottish Water also noted that it had been advised by the Scottish Executive that it should use 9.81% as its assumed cost of debt in preparing its second draft business plan for the retail business.

Scottish Water suggested that a cost of capital at the upper end of the range suggested by Ernst and Young LLP should be used.

Balance sheet

Scottish Water commented that no evidence had been provided in the draft determination to justify the assumption that working capital would be 27% of sales. Scottish Water also noted that the draft determination did not provide individual financial statements for the licensed business.

Scottish Water stated:

"The assumptions used to forecast working capital are over simplified and may therefore understate the working capital and borrowing requirements of the licensed business. A detailed exercise is required to model all the cash flows between Scottish Water and the licensed business, to forecast the likely working capital requirements."²³

Scottish Water also suggested that an escrow account would be required to protect Scottish Water from the effect of a failure by a new entrant. Scottish Water claimed that a month paid in advance would provide such security but noted that this advance payment should be increased if retailers were not obliged to pay on receipt.

Summary

Table 24.2 describes the minimum changes that Scottish Water required to be taken into account in the final determination in the issues that are covered by this chapter.

²¹ Scottish Water's response, op. cit., page 131.

²² Ernst and Young LLP, "Cost of capital report for the Water Industry Commissioner for Scotland" (May 2005)

²³ Scottish Water's response, op. cit., page 121.

Table 24.2: Summary of Scottish Water's representations in relation to financing costs and ratios

Issue	Scottish Water's representations: relevant chapter	Minimum change required
Increase in PFI service fees	Private Finance Initiative	The final determination should allow for the increases in service fees that will arise because of contractual obligations.
Retail business cost of capital	Introducing competition and the licensed business	The cost of capital for the licensed business should be towards the upper end of the range 7.96% to 8.87% (post-tax) that was stated in the Ernst and Young report.
Escrow account	Introducing competition and the licensed business	The final determination should include the requirement for retailers to make payments into an escrow account. This will require an additional £25 million to be included in the licensed business' working capital requirement.
Market share erosion ²⁴	Introducing competition and the licensed business	The final determination should take full account of the likely market share erosion for the licensed business.
Interest rate	Finance, borrowing and tax	The interest rate for calculating the cost of debt should be set no lower than 2.6% real (5.1% nominal) in the final determination and should take full account of the cost of embedded debt.
Tax	Finance, borrowing and tax	The Commission should make the corrections to the calculation of the tax liability.
Escrow account	Finance, borrowing and tax	The working capital should include an escrow account for retailers.
Inflation	Finance, borrowing and tax	The operating cost inflation should be indexed at RPI, not CPI.

²⁴ Market share erosion is discussed in Chapter 12.

Chapter 25:

Other stakeholders' representations

Introduction

This chapter summarises the representations from other stakeholders on the Commissioner's view of Scottish Water's financing costs.

In the draft determination, the Commissioner explained that he had moved towards an RCV method of charge setting. This approach required the Commissioner to establish an appropriate rate of return for Scottish Water. He explained that in order to ensure that Scottish Water was financed on a sustainable basis, he had aimed to ensure compliance with Ofwat's financial ratios.

Of the 35 representations that we received on the draft determination, four commented on the Commissioner's approach to Scottish Water's financing costs. The comments related to the allowed for rate of return, the level of new borrowing required by Scottish Water, and the possible options for financing Scottish Water's future retail entity.

The allowed for rate of return

In his draft determination, the Commissioner explained he had allowed a rate of return on its RCV that would ensure that Scottish Water would be financially sustainable (if it performed in line with its regulatory contract).

The Commissioner applied a hybrid approach to set an allowed for rate of return. This hybrid approach was a modified version of the weighted average cost of capital (WACC) approach that is used by the regulators of private sector companies. He combined an observed real cost of debt with an estimate of an appropriate rate of return on the customer retained earnings (the equity portion of Scottish Water's RCV) in order to produce an allowed for rate of return.

Water UK commented on the Commissioner's allowed for rate of return. It noted:

"We would like to reiterate the points made in our earlier correspondence on the use of a cost of finance rather than a market cost of capital, which we believed would be more appropriate."

In its response to the Commissioner's consultation on the proposed methodology for the Strategic Review, Water UK had commented:

"The WIC analysis focuses on the cost of finance rather than the cost of capital. However, for consistency with economic principles, and also with HM Treasury guidance on required rates of return, the WIC should use the cost of capital – the rate at which investors would be willing to supply funds to Scottish Water given the fundamentals of the business."

Water UK went on to comment in its methodology response:

"Presumably the WIC's position is based on the view that allowing more than the cost of finance would leave Scottish Water with too much cash in hand. However, any surplus cash would be distributed to the owner (the government, who could then decide whether to reinvest in Scottish Water or use the funds elsewhere (this could include customer rebates))."

Financial sustainability and targeted ratios

In the draft determination, the Commissioner noted that it was in customers' interests to ensure that Scottish Water was financially sustainable. He expressed a clear view that the financial ratios adopted by Ofwat represented a good measure of financial sustainability.

The Commissioner explained that in order to comply with these ratios not all of the available public expenditure was required.

The CBI commented:

"We note that the Draft Determination does not envisage using all of the public expenditure that is available. We understand the desire to create a funding regime for Scottish Water that is sustainable in the long-term and fairly allocates costs between current and future customers. However, we are concerned that by taking an overly cautious approach to borrowing, current business customers will be subjected to higher charges than they

would otherwise have to pay....We seek reassurance that borrowing will be increased to the maximum sustainable level to minimise the requirement for funding from the current customer base.”

The Commissioner explained that the level and mix of investment also had a material impact on the level of revenue that Scottish Water required from customers to comply with key financial ratios.

The Water Customer Consultation Panels (WCCP) commented:

“SW’s [Scottish Water’s] public sector status means on the one hand it can borrow at preferential public sector rates albeit within tightly constrained limits. On the other hand SW cannot freely borrow from commercial markets, and the supply of external capital is rationed. Consequently there is a very direct link in Scotland between actual investment and performance and the cost of the bill the customer pays.”

The WCCP commented that these constraints led to customers bearing additional risks. Their comments on this issue are set out in more detail in Chapter 31.

Financing the retail entity

In the draft determination, the Commissioner explained that consideration should be given to how the retail entity that Scottish Water would be required to create under the 2005 Act would be financed. He noted that this was an issue for the Scottish Executive. However, the Commissioner did emphasise the importance of ensuring that the retail subsidiary could demonstrate that it paid a market rate for capital.

In its representation, the Scottish Executive noted:

“Any lending by the Executive to the retail entity that SW will be directed to establish under section 13 of the Water Services etc. (Scotland) Act 2005 will be at such rates and on such terms as to ensure that the Executive and the entity are compliant with EU state aids rules and with competition law.”

Summary

Four respondents other than Scottish Water commented on the financing costs of Scottish Water that were allowed for in the draft determination. In the next chapter we set out our conclusions on this issue.

Chapter 26:

Our conclusions

Introduction

In this chapter we discuss the key financial assumptions that underpin this determination of charge caps. We have taken full account of the new information that has become available since the Commissioner published his draft determination. We have also taken account of representations on the draft determination from Scottish Water and other stakeholders.

Financial ratios

We have assessed Scottish Water's financial strength using the same suite of financial ratios that Ofwat used in its 2004 price review¹. We use five of the six ratios as historically information about maintenance spend has been poor. We have set charge caps such that if Scottish Water achieves the minimum acceptable level of performance set out in this determination, it will comply with all of the cash-based financial ratios in 2009-10. We have accepted that the Commissioner's approach struck the right balance between the needs of current customers and those of future customers.

We set out these financial ratios in Table 26.1.

Table 26.1: Financial ratios

Financial ratio	Targeted value
Cash interest cover	Around 3 times
Adjusted cash interest cover	Around 1.6 times
Funds from operations: debt	Greater than 13%
Retained cash flow: debt	Greater than 7%
Gearing	Less than 65%

We have noted representations from the CBI², which questioned whether the Commissioner had taken an 'overly-cautious' approach to borrowing. The CBI suggested that current customers may face higher bills than was necessary. We have, however, noted the analysis set out by the Commissioner in Volume 7 of his draft determination, which showed that while it was possible to set lower charges in this regulatory control period, this would both increase the charges that would be payable in the medium term and lead to higher year-on-year increases. We have therefore concluded that the Commissioner's approach was reasonable.

It is important to emphasise that future customers will have to meet the costs of any extra borrowing by Scottish Water. It would also reduce the industry's ability to respond effectively to an operational shock. The Water Customer Consultation Panels recognised this risk in their representations.

We have also noted that these financial ratios were developed in consultation with the water companies, the City and the credit rating agencies. We believe that these ratios are therefore likely to represent a fair market assessment of the appropriate split between current and future financing needs. We can see no reason why Scottish Water should not seek to match the financial strength of the companies in England and Wales.

In Table 26.2 we set out our forecast of Scottish Water's financial ratios for each year of the regulatory control period.

Table 26.2: Scottish Water's financial ratios for each year of the regulatory control period 2006-10

Financial ratio	Targeted value	2006-07	2007-08	2008-09	2009-10
Cash interest cover	Around 3 times	3.6	3.8	3.7	3.5
Adjusted cash interest cover	Around 1.6 times	2.3	2.5	2.3	2.0
Funds from operations: debt	Greater than 13%	14.9%	16.0%	14.5%	13.0%
Retained cash flow: debt	Greater than 7%	14.9%	16.0%	14.5%	13.0%
Gearing ³	Less than 65%	63.8%	61.6%	60.3%	60.0%

Table 26.2 shows that Scottish Water complies with each ratio in each year. Scottish Water's overall financial strength, as measured by the gearing ratio, improves modestly over the regulatory control period. We believe that this financial performance is consistent with the ministerial statement in the principles of charging.

Progress towards the RCV approach to charge cap setting

The Commissioner's draft determination suggested that we should move towards the RCV approach to setting charge caps. We have also adopted this approach. In our view, the RCV method of charge setting increases

¹ We use five of the six ratios as historically information about the maintenance spend has been poor.

² These were explained in greater detail in the previous chapter. The CBI's representation is available in full on our website and Appendix 14.

³ As measured by debt to regulatory capital value, discussed below.

the transparency of the process. It also differentiates between the cost of using assets and the cost of enhancing assets. We have noted that stakeholders have been generally supportive of this move.

The Commissioner set the initial RCV such that if Scottish Water were to meet the terms of its regulatory contract, it would comply with all of the financial ratios by the end of the regulatory control period. We have adopted this same approach. However, we recalculated the initial RCV based on our assumptions in this determination. Our calculation is shown in Table 26.3.

Table 26.3: Calculation of the initial RCV (outturn prices)

		2006-07	2007-08	2008-09	2009-10
	Opening RCV	£3,751.3m	£4,110.3m	£4,507.3m	£4,929.2m
plus	Inflation adjustment	£93.8m	£102.8m	£112.7m	£123.2m
plus	New investment	£540.1m	£594.6m	£630.9m	£682.8m
less	Depreciation	£186.0m	£209.2m	£228.5m	£249.5m
less	Infrastructure renewals charge	£87.9m	£90.0m	£92.2m	£94.4m
less	Disposal of Assets	£1.0m	£1.0m	£1.1m	£1.1m
equals	Closing RCV	£4,110.3m	£4,507.3m	£4,929.2m	£5,390.3m
	Year average ⁴	£3,930.8m	£4,308.8m	£4,718.3m	£5,159.8m

We adjusted the average RCV in 2006-07. This reflects allowed investment during 2006-07 and the reduction in the RCV that we have included to compensate customers for the overhang from Quality and Standards II. This removes £274.5 million from the initial RCV. The impact of this investment and our other assumptions is summarised in Table 26.3.

An initial RCV of £4,025.9 million (£3,751.3 million plus £274.5 million⁵) is consistent with Scottish Water achieving financial sustainability. We note that our initial RCV is higher than that which the Commissioner calculated. This is a result of our assumptions on capital expenditure and operating costs. This RCV is also slightly higher than that which could have been justified by the Commissioner's analysis of the appropriate range for the initial RCV. We are, however, reassured that our initial value is still within the range identified by the Commissioner in his analysis.

⁴ (opening RCV + closing RCV)/2.

⁵ £274.5 million is the value of the outputs remaining to be delivered from Quality and Standards II.

We will complete our move towards the RCV method of price setting at the next Strategic Review of Charges. At that time we intend to consult on how best to assess the allowed for rate of return on the RCV. We will review our use of financial ratios and implement a rolling performance incentive for Scottish Water. In this determination we have focused on ensuring that the initial RCV is reasonable and that Scottish Water could enter the next regulatory control period in a strong financial position.

Allowed for rate of return

As a public corporation, Scottish Water has only two sources of funds: revenue from customers and new debt. Scottish Water does not borrow directly from the capital markets, nor does it borrow at commercial rates. Scottish Water borrows from the Scottish Consolidated Fund at public sector borrowing rates.

Scottish Water does generate surpluses and therefore has retained earnings, which it can invest to achieve the outputs set by the Scottish Ministers. As it does not pay dividends at present, all of the surplus generated can be reinvested for the benefit of current and future customers. These reinvested surpluses have essentially the same properties as retained earnings (a form of equity) in the private sector, except that they are reinvested for the benefit of customers, rather than with the specific aim of generating higher profit in future.

We accepted the Commissioner's view on the appropriate allowed for rate of return.

We received representations from some stakeholders that the Commissioner's allowed for rate of return did not properly reflect the cost of capital that applies to Scottish Water. However, we consider that we have to take account of the lower cost of capital in the public sector in making our assessment of the lowest reasonable overall cost.

We noted in Chapter 23 that some new information could suggest that we should adopt a lower rate than the one the Commissioner used.

The allowed for rate of return for Scottish Water's debt is 4.6% and the allowed rate of return on customer-retained earnings is 3.22%⁶. We also made a full allowance for the costs of embedded debt⁷. We have added the extra interest costs above 4.6% to the cash return on the RCV for each year of the regulatory control period.

Suggestion of double counting in the allowed for rate of return

In its representations on the draft determination, Scottish Water highlighted a potential double-counting effect in the financial model. We considered this representation carefully. We began by considering whether this effect would have any material impact on the charges paid by customers. We concluded that it would have no effect on customers' charges because we have set charges relative to the financial ratios that were discussed earlier in this chapter.

For each year of the regulatory control period, the financial model multiplies the RCV (increased annually at the rate of inflation) by the nominal allowed rate of return (ie the real rate plus inflation). Scottish Water suggested that by taking account of inflation on both sides of the equation the effects of inflation were being double counted.

We compared the Commissioner's approach to that of other regulators and would agree with Scottish Water that the Commissioner's approach was different. Other regulators inflate the capital base as the Commissioner did, but multiply by a real rate of return (ie nominal rate minus inflation).

If we changed our approach we would either have had to set a higher allowed rate of return or to increase the initial RCV. If we had not adjusted either the initial RCV or the allowed for rate of return, Scottish Water may not have been in a financially sustainable position in 2009-10. It is possible that the allowed for return on the RCV would not have been sufficient for Scottish Water to pay its interest costs. This point is best illustrated with an example.

If Scottish Water borrowed £1 million at a nominal interest rate of 7.5%, its interest payment at the end of the year

would be £75,000. If we assume that inflation was 2.5% and that the real interest rate was therefore 5%, the value of inflation would be £25,000 and the real return would be £50,000. We could choose to remunerate this using either a real or nominal interest rate or an inflating or constant capital base. The effect of our choice of remuneration is shown in Table 26.4.

Table 26.4: Effect of choice of remuneration of capital base on allowed return

	Non-inflating capital base (£1 million)	Inflating capital base (£1.025 million)
Real rate of return (5%)	£50,000	£51,250
Nominal rate of return (7.5%)	£75,000	£76,875

Table 26.4 shows that inflating the capital base and using a nominal rate of return (as happens in our financial model) overstates the return relative to the interest that must be paid. However, using a real rate of return would result in a cash allowed return that is below the appropriate interest rate.

Using the real rate of return principally impacts a company that has a relatively high level of debt relative to its RCV. The effect is reduced by the return earned on the un-leveraged portion of the RCV. In this determination we continued to use the nominal rate of return. However, we will review this approach when we consult on the proposed methodology for the next Strategic Review of Charges (likely to cover the 2010-14 period).

To bring our approach exactly into line with the approach used by Ofwat would affect our initial RCV or would require us to change the rate of return that we allowed for on the RCV. We calculated the RCV that we would have required in the last year of the regulatory control period so that the cash allowed return on the RCV⁸ was sufficient to allow all of the Ofwat cash based financial ratios to be met. This is illustrated in Figure 26.1. We could then calculate the required initial RCV, taking account of our assumptions on taxation, inflation, depreciation and our allowed level of capital expenditure.

⁶ See Chapter 22 for a description of how these numbers are calculated.

⁷ Embedded debt is debt taken out prior to April 2004, which carries a higher coupon than the allowed rate of return.

⁸ The product of the allowed rate of return and the RCV.

Figure 26.1: RCV in 2009-10

$$\text{Average RCV in year 4} = \frac{\text{Total financing revenue in 2009-10}^9}{\text{Allowed rate of return}}$$

If we changed our model so that it implied an initial RCV using a real rate of return, the initial RCV would become around £11 billion. This is around double the upper end of the range suggested by the Commissioner’s analysis. In our view, such a large RCV could not be justified.

RCV: a comparator analysis

We noted the Commissioner’s comments about the importance of ensuring that the initial RCV is reasonable given the observed range of regulatory capital values that would be implied by using the comparator approach¹⁰. We agree that his approach was analytically robust and reasonable given that there is no market value for Scottish Water.

In the draft determination, the Commissioner outlined the comparisons he had made. He first selected independent variables for which information was consistently available across all of the water and sewerage companies in England and Wales and for Scottish Water. He then compared these variables with the RCVs of the water and sewerage companies.

The results of the Commissioner’s analysis are summarised in Table 26.5. This shows how reliable the comparison is, as measured by the average R² of the correlation. The closer the R² value is to 100%, the more the Commissioner could rely on the ratio.

Table 26.5: Range of RCVs implied by each comparator approach

	Minimum	Maximum	Average R2
Revenue (minus operating costs)	£3.9bn	£5.6bn	97.2%
Revenue (minus operating costs & IRC)	£3.0bn	£4.8bn	95.8%
Historic cost fixed assets	£2.5bn	£3.3bn	97.1%
Net debt	£2.9bn	£6.5bn	61.1%
Customer numbers	£2.3bn	£5.2bn	84.8%
Volumes	£2.0bn	£6.0bn	75.4%

The Commissioner noted that there was no single RCV that satisfied each of the comparisons. Indeed, the two comparisons with the strongest relationship (revenue (minus operating costs) and historic cost fixed assets) produced ranges that did not overlap. Figure 26.2 shows the ranges for each of the comparisons.

Figure 26.2: Ranges implied by comparators for Scottish Water’s initial RCV at 31 March 2006

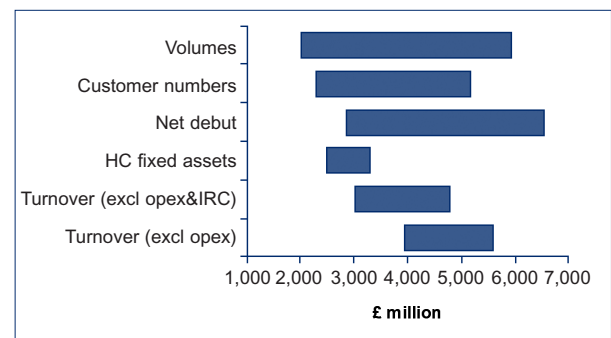
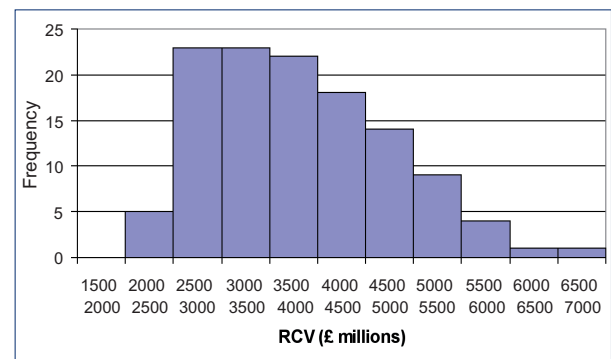


Figure 26.3 illustrates that the most common results of the Commissioner’s comparisons were between £2.5 billion and £3.5 billion. Results that were higher than £5 billion were relatively rare, although they were sufficient to increase the average.

Figure 26.3: Frequency of RCV occurrence using all means of comparison



In our financial model, we calculate the Year 4 RCV using our assessment of the nominal rate of return. As outlined above, this implies an initial RCV of around £4 billion. This is clearly within the range that is suggested by the comparisons that the Commissioner made.

⁹ This is the difference between required revenue (to comply with financial ratios) and calculated revenue (excluding the cash return on RCV).
¹⁰ This is discussed in Volume 5, Chapter 19 of the Commissioner’s draft determination.

An alternative to the Commissioner's approach

We considered an alternative approach. We looked in detail at revising our assessment of the cost of capital. We considered using the observed public sector cost of debt and the same equity return used by Ofwat for the unleveraged portion of the RCV. This would have ensured that customers' bills reflected the lower public sector cost of debt. It would have increased the return that we allowed for on the unleveraged portion of the RCV (the customer-retained earnings) from 3.22% to 10.2%. Our analysis showed that this approach would have resulted in an RCV of between £3.5 billion and £4.1 billion, depending on our assumptions on capital structure. We are significantly reassured that the initial RCV calculated in this way appears to be reasonable given the comparator analysis that is available.

Our conclusion on RCV

However, for this final determination we have decided to continue to use the approach outlined by the Commissioner in his draft determination. We believe that changing our approach to the calculation of the allowed rate of return without proper consultation would have reduced the transparency of our approach to this Strategic Review. We believe that this is especially important as it would have had no impact on the final charge caps set in this determination and only a limited (if any) impact on the initial RCV. We will consult on our approach to setting the allowed for rate of return in our methodology consultation for the Strategic Review of Charges for the regulatory control period that begins in 2010.

Sensitivity analysis

It is important for stakeholders to understand the effect of our financial assumptions on charge caps and revenue levels. In setting maximum charges, we have changed the modelled answer to ensure that:

- Scottish Water's financial strength improves over the regulatory control period;
- charges remain broadly stable during the regulatory control period; and

- charges are not cut in an unsustainable way that would lead to real increases in charges for customers in future years.

These manual interventions allowed us to meet the terms of the Ministers' statement on the principles of charging. In altering the revenue level that was calculated by the model we have sought to:

- ensure that revenue is no higher than it needs to be (in other words, no higher than that required to ensure that Scottish Water is compliant with the financial ratios);
- ensure that neither current nor future customers are disadvantaged;
- smooth the revenue profile; and
- minimise the impact of rebalancing from household to non-household customers.

Effect of revenue phasing on financial ratios and revenue

In Chapter 35 we discuss in more detail the revenue that we have allowed Scottish Water in each year of the regulatory control period.

Table 26.6 compares the following different scenarios.

- Scenario 1 shows the effect on revenue of not complying with financial ratios, but setting revenue with reference to our initial RCV of £4,025.9 million. While this revenue may have reduced bills to customers in this regulatory control period, it is not consistent with achieving financial sustainability. Scottish Water would have taken on more debt than we consider prudent and this would have an adverse impact on bills in the future.
- In Scenario 2 we assessed the lowest possible revenue in each year that was consistent with achieving compliance with all of the targeted financial ratios in each year. This scenario therefore achieves financial sustainability and lower bills to customers in the early years. However, we believe that the charge

increases it implies during the period are not consistent with the ministerial principles of charging.

- Scenario 3 ensures that there is compliance with all of the financial ratios in each year and that charges do not vary by more than inflation each year¹¹. This is the charge profile that we have used. We consider it to be consistent with the ministerial statement on charging.

Table 26.6: Comparison of use of financial ratios

	2005-06	2006-07	2007-08	2008-09	2009-10	Comments
Scenario 1: Required revenue formula	£963.0m	£871.9m -9.5%	£920.4m 5.6%	£981.0m 6.6%	£1,040.2m 6.0%	- KPIs ¹² breached in all years - PEL ¹³ breached in year 4 - Large impact on year-on-year prices
Scenario 2: Minimum revenue required to meet cash KPIs in all years	£963.0m	£937.7m -2.6%	£933.9m -0.4%	£999.0m 7.0%	£1,068.3m 6.9%	- KPIs compliant - PEL not breached - Still large impact on year-on-year prices
Scenario 3: Final determination	£963.0m	£981.2m 1.9%	£1,004.7m 2.4%	£1,035.9m 3.1%	£1,066.4m 2.9%	- KPIs compliant - PEL not breached - Smooth revenue profile

Effect of investment phasing on financial ratios and revenue

We outlined in Chapter 20 the investment that we have assumed Scottish Water will deliver in each year. This investment is our assessment of the lowest overall reasonable cost of delivering the Ministers' essential and desirable objectives. The level of investment has a direct impact on charges. However, the phasing of investment in each year can also have a direct impact on charges. This is because it affects Scottish Water's cash needs in any year.

Table 26.7 shows the impact that phasing the investment programme can have on the financial ratios and on the revenue we have allowed Scottish Water. In scenario 1

we show the revenue we would have had to allow Scottish Water in each year given a different phasing of the investment programme. In scenario 2 we show the number of financial ratios that would be breached in each year if we had kept revenue at our assumed levels.

In essence, customers are best served by allowing for an investment programme that increases modestly in real terms during the regulatory control period. We believe that this is also more consistent with the delivery of capital programmes by regulated companies.

We noted that Scottish Water's representations suggested that it should not be required to deliver as much of the investment programme in the first year of the regulatory control period as the Commissioner had suggested in his draft determination. We concluded that our profile is optimal from a customer standpoint and has ensured that Scottish Water has access to sufficient resources when it needs them.

Table 26.7: Impact of phasing of investment

Scenario ¹⁴	Profile	Revenue ¹⁵ (outturn prices)					Average annual increase
		2003-04 prices	2006-07	2007-08	2008-09	2009-10	
Scenario 1: Revenue under different phasing assumptions	Increasing ¹⁶ 491-523-541-571		£987.1m	£1,011.8m	£1,037.1m	£1,063.1m	2.50%
	Flat 531-531-531-531		£990.0m	£1,017.7m	£1,046.2m	£1,075.5m	2.80%
	Decreasing 571-541-523-491	£993.0m	£1,023.9m	£1,055.7m	£1,088.5m		3.11%
Scenario 2: number of KPIs breached under different phasing assumptions ¹⁷	Increasing 491-523-541-571	0	0	0	0		
	Flat 531-531-531-531	0	0	0	1		
	Decreasing 571-541-523-491	0	0	0	1		

Allowed for rate of return

In their representations on the Commissioner's draft determination, Water UK and Scottish Water argued that the allowed for rate of return should have been set at least in line with the rate that Ofwat used in its 2004 price review.

¹¹ We discuss our charge limits in more detail in Chapter 35.

¹² Key performance indicators, a set of financial ratios used to measure financial sustainability.

¹³ Public expenditure limit.

¹⁴ In all scenarios we assume the same level of 'early start' investment for 2005-06 – see Chapter 10 for details.

¹⁵ For simplicity, we have assumed equal annual increases for each year.

¹⁶ The increasing investment phasing is the assumptions we make in the financial model.

¹⁷ In the flat and decreasing assumptions, the Funds from operations:debt ratio is breached in the last year.

Even if we had accepted their argument and had set a higher allowed for rate of return, this would not have had an impact on the revenue required from customers that we would have considered necessary. This is because the implication of Scottish Water's arguments would have been to require us to set a lower initial RCV such that Scottish Water would have had enough revenue (as calculated by the model) in 2009-10 to comply with the key financial ratios.

We would have sought to increase or reduce the revenue calculated by the model to the minimum level that is consistent with delivering the objectives set out in the ministerial directions and compliance with the key financial ratios. Our conclusion on the required level of revenue from customers would not have changed, even if we had set a higher rate of return.

If we had set a lower allowed for rate of return, this would have increased the initial RCV that we would have set. Again, this would not have had any impact on this final determination of charges.

Table 26.8 compares the modelled answer and an adjusted modelled answer if the allowed rate of return had been set at 5.1% real post-tax.

Table 26.8: Adjusted and unadjusted modelled answer with 5.1% real post-tax rate of return

Return on equity	RCV	Revenue			
		2006-07	2007-08	2008-09	2009-10
0.72% real post-tax plus embedded debt adjustment (this determination)	£4,025.9m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
5.1% real post-tax plus with no embedded debt adjustment ¹⁸	£1,857.2m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Variance between scenarios		£0m	£0m	£0m	£0m

Depreciation and IRC charges

As we are moving towards an RCV approach to price setting it is important to examine the allowed for level of the depreciation and infrastructure renewal charges. Under the RCV approach these charges would usually have a direct impact on the charges that customers pay. However, because we have set charges based on compliance with the Ofwat cash-based financial ratios in 2009-10, these charges have not materially impacted on the level of revenue that we have allowed in this determination¹⁹.

In Chapter 23 we explained that Scottish Water had submitted an updated asset value for 2004-05. We have estimated asset additions and depreciation in 2005-06 in order to estimate an asset value for 2005-06. Table 26.9 shows that this increase in the asset value did not affect the allowed for revenue in any year. The alternative would have been to increase the initial RCV.

Table 26.9: Impact of depreciation (by changing the opening MEAV²⁰) on the initial RCV

2005-06 opening MEAV	RCV	2006-07	2007-08	2008-09	2009-10
This determination depreciation charge	£4,025.9m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
2004-05 Annual Return updated	£4,282.2m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Variance between scenarios		£0m	£0m	£0m	£0m

In Chapter 24 we outlined Scottish Water's representations on the way investment was apportioned between infrastructure renewals expenditure and the various asset life categories. We reviewed the Commissioner's approach in some detail.

We consider that the Commissioner's assessment of the allowed for IRC was reasonable. In our view, the Commissioner's analysis of the appropriate level of IRC supports his conclusion of £79 million (2003-04 prices). We also compared this level of IRC with our assessment of the appropriate level of capital maintenance. In our view our allowed for level of capital maintenance is broadly consistent with the allowed for IRC.

¹⁸ This calculation reflects the impact of a nominal return on an inflated RCV.

¹⁹ The IRC and depreciation are an input to the adjusted cash interest cover financial ratio; however, this ratio is above its minimum value in each year. In addition, the tax treatment of IRC may impact upon prices – this is discussed further in Chapter 36.

²⁰ Modern equivalent asset value.

We have based our apportionments for each asset life category on the same mix of assets that Scottish Water included in its second draft business plan. We deducted IRE from Scottish Water's proposed investment and applied the same percentages to apportion new investment over the four years.

Conclusions

We believe that this determination should increase the financial strength of the Scottish water industry. However, Scottish Water will only benefit from this improved financial strength if it meets the terms of its regulatory contract.

A stronger industry will be able to respond more effectively to an operational or financial shock. Customers should also benefit from more stable charges in the medium term.

In our view the use of the Ofwat financial ratios means that our determination strikes an appropriate balance between the charges that are paid by customers both now and in the future.

We have set an initial RCV of £4,025.9 million. We propose to use the RCV method to set charges from 2010.

Section 6:

Governance and incentives

Chapter 27:

Introduction

Introduction

For regulation to be effective, there needs to be a governance and incentive framework that works well and is fully aligned with the regulatory contract.

It is important that customers, employees of Scottish Water and other stakeholders understand the governance and incentive framework that will apply during the 2006-10 regulatory control period. This requires clarity on the following issues.

- What will happen if Scottish Water outperforms the level of performance that is required by the regulatory contract.
- What will happen if Scottish Water underperforms the level of performance that is required by its regulatory contract.
- What will happen if Scottish Water has to meet significant costs (or receives a significant windfall benefit) that was not included in its regulatory contract.
- Who makes decisions about employee bonuses.
- The criteria that should govern employee incentives if the interests of stakeholders are to be met.
- How future operational shocks can be absorbed at lowest overall cost.

It is also important that the financing arrangements that will apply during the regulatory control period are clear, and that they will only be changed according to a pre-determined process. In the absence of such a hard budgetary constraint, management will not face sufficient pressure to perform. This is not in the interests of customers.

If we take as an example the performance bonuses that Scottish Water's employees receive when they meet particular targets. It is likely that these targets will be the principal focus of the employees. The customers' interests requires that these targets are fully consistent with the regulatory contract.

In the *Strategic Review of Charges 2002-06*, the Water Industry Commissioner for Scotland suggested that the arrangements for employee incentives should be published in advance. He also proposed that incentives should be paid when levels of service targets for the 2002-06 review period were achieved. In the event, there was insufficient clarity about the criteria for incentive payments and the requirements that were set out at the Review. In particular, there was no clear relationship between achievement of the targets included in the Strategic Review of Charges 2002-06 and the framework for the bonus payments to employees.

Structure of this section

In this section, we provide information on the governance and incentive framework that will apply during the regulatory control period 2006-10. We also describe the positive steps that have been taken to support the operation of an effective public sector model for the water industry in Scotland.

The section comprises six chapters:

- Chapter 27 is this introduction.
- Chapter 28 summarises the views of the Water Industry Commissioner for Scotland in his draft determination on an appropriate framework for governance and incentives in the public sector water industry in Scotland.
- Chapter 29 outlines developments since the draft determination was published.
- Chapter 30 summarises Scottish Water's representations on the governance and incentive framework for the 2006-10 regulatory control period.
- Chapter 31 summarises representations from other stakeholders.
- Chapter 32 outlines the conclusions of the Water Industry Commission following its review of the Commissioner's proposals and the representations from other stakeholders.

Chapter 28:

Conclusions of the draft determination

Introduction

Regulatory reviews occur at fixed intervals. In Scotland, a Strategic Review of Charges is currently carried out every four years, while in England and Wales a Review takes place every five years.

Before the Water Services etc. (Scotland) Act 2005 was passed, the Water Industry Commissioner for Scotland provided advice to Scottish Ministers on charges. Ministers could commission advice whenever they considered it necessary. In this framework, there was no need for a specific process for interim determinations between Reviews as it was for Ministers to judge when the advice needed to be revisited.

In line with the Commissioning letter of May 2005 (which in part anticipated the provisions of the 2005 Act), in the draft determination the Commissioner had to ensure that Scottish Water would have sufficient resources to deliver the objectives of Ministers at the lowest reasonable overall cost. Scottish Water must be able to recover the costs of any unexpected expenditure that results from unforeseen circumstances that are outside management control (rather than from underperformance).

The Commissioner differentiated between cost problems that arise which are reasonably within the control of managers, and those that are genuinely outside the control of management. He explained that the regulatory framework needs to be able to respond in an effective and timely way to unexpected costs that are outside the control of good management. However, the Commissioner also expressed a clear view that customers should not be asked to pay twice for the same outputs. He considered that it was for the Scottish Executive to decide on an appropriate course of action if Scottish Water did not meet the terms of the final determination of charges.

In the draft determination, the Commissioner discussed how all of the economic regulators in the UK use an incentive-based approach to determine prices. He explained that under this approach, the regulator

analyses the scope for improvement in performance of the regulated company and sets appropriate charge caps. A determined management may outperform the targets and, in doing so, will benefit shareholders (for private companies) or customers (as in the case of the not-for-dividend Welsh company, Glas Cymru). The Commissioner explained that such outperformance raises the level of performance that is expected at future Reviews. He noted that it was this 'ratchet' effect that had resulted in the significant efficiency gains that have taken place in the water industry south of the border.

The Commissioner explained that a key element of incentive-based regulation is ensuring that the regulated company faces a hard budgetary constraint. He noted that it is this pressure that forces management to seek to improve its efficiency.

In this chapter we outline the Commissioner's proposals to adopt two mechanisms that Ofwat has used in England and Wales to deal with changes that are outside the control of management.

- The first is the mechanism for carrying out interim determinations of charge limits between regulatory reviews.
- The second is the approach of logging up and down at a regulatory review.

In adopting these mechanisms, the Commissioner explained that he had sought to create a regulatory framework that was sufficiently flexible to allow for significant changes that are outside the control of management but did not create too much uncertainty for customers. The Commissioner expressed a clear view that Ofwat's tried and tested process for interim determinations was an appropriate approach. He also explained that he intended to replicate as much of the Ofwat process as was possible given the structure of the industry in Scotland. He explained that while he could not use licence conditions¹, it would be possible to use the business plans and the price determination to highlight issues that would cause an interim determination to become appropriate. The Commissioner

¹ Each of the companies south of the border operates under a licence. The licence sets out the company's responsibilities and how prices will be set. It also sets out the mechanism for price changes during a regulatory control period.

used Scottish Water's second draft business plan to identify many of the material risks that are outside the control of management.

The chapter then goes on to consider the Commissioner's proposals for developing the use of incentive-based regulation in promoting the interests of customers of the public sector water industry in Scotland.

Underperformance of the charges determination

In the draft determination, the Commissioner noted that Ministers had stated that the Scottish Executive would not increase its lending to Scottish Water to meet the cost of achieving objectives that had already been funded through agreed levels of lending and the charge caps. The Commissioner agreed that this statement provided Scottish Water with firm financial limits within which it had to operate during the regulatory control period.

The Commissioner further noted that if Scottish Water did not meet the level of performance set out in the determination of charges, it would be for the Scottish Ministers (as the de facto owner) to decide on an appropriate course of action. In his view, such a course of action should not have an adverse impact on customers.

The Commissioner proposed that the process for measuring and reporting on any underperformance would be through publication of three annual reports on costs and performance, investment and asset management and customer service. The costs and performance report would highlight the extent of any financial underperformance that had accrued. It would then be for Ministers to determine how any underperformance should be addressed. The Commissioner noted that there was a possibility that, during the regulatory control period, underperformance in an early year could be compensated by outperformance in a future year. However, at the next determination of charges, Ministers would need to decide how the costs of any accumulated underperformance should be met. The Commissioner made it clear that an interim determination of charges would not be an appropriate way to manage a problem of this nature.

Interim determinations are designed to respond to changes in the level of cost incurred by regulated companies that are outside the control of management.

Interim determinations in England and Wales

The Commissioner's draft determination went on to explain the process of interim determinations in England and Wales. An interim determination² is a reconsideration of a firm's price limits that could be undertaken between price reviews. The reconsideration is carried out in the light of a particular set of circumstances or factors (outside management control) that were not taken into account at the previous review. Either the firm or the regulator is able to initiate an interim determination.

An interim determination is not a 'mini price review'. The full range of factors that are considered by the regulator at a price review are not considered at an interim determination. Only those particular circumstances that have triggered the interim determination are taken into account.

In England and Wales, the factors that can trigger an interim determination fall into two categories.

- Relevant changes of circumstance (RCCs), which are factors that are recognised in the company licences, ie the Instruments of Appointment.
- Notified items (NIs), which are factors that were identified and noted at the last price review, but were not allowed for in the determination of prices.

In addition, some water and sewerage company licences refer to any other circumstance (other than a relevant change of circumstance) that has a material impact on the firm. The impact on the firm is described in the company licences as:

"(a) a substantial adverse effect on the Appointed Business or on its assets, liabilities, financial position, or profits or losses, not being one which would have been avoided by prudent management action taken since the transfer date; or

(b) a substantial favourable effect on the Appointed Business, or on its assets, liabilities, financial position, or profits or losses, being one which is fortuitous and not attributable to prudent management action.”

Relevant changes in circumstance (RCCs)

RCCs refer to the variations in circumstances, as laid down in Condition B of the company licences, in respect of which Ofwat may make adjustments to price limits.

There are four principal relevant changes in circumstance.

RCC 1 – new legal requirements: a new or changed ‘legal requirement’ that affects the companies in their capacity as water or sewerage undertakers. The change could be a legal requirement ceasing to apply, being withdrawn or not being renewed. New or changed legal requirements include the impact of:

- national legislation;
- regulations made by the Council or Commission of the European Communities;
- undertakings given to the Secretary of State by the appointed business, and accepted by the Secretary of State; and
- legal judgements (ie decisions made in courts of law).

RCC 2 – proceeds from the disposal of land: a difference in the proceeds of land disposals from that assumed when price limits were last set.

RCC 3 – failure to take steps: the Appointee has failed to take steps that the determination assumed it would take in order to comply with a legal requirement. As a result the amount allowed by the determination is substantially greater than the costs incurred, and the purpose has not been otherwise achieved.

RCC 4 – relative price effects: the cost of an allowed capital investment is different from that which was assumed at the last price review due to an increase or decrease in capital prices relative to the retail price index

(RPI). The indicator of the relevant prices is the Notified Index, which is the change in the construction output price index (COPI) relative to RPI. This relevant change in circumstance applies only to Anglian Water Services Ltd, United Utilities Water plc, Yorkshire Water Services Ltd and Cholderton and District Water Company Ltd.

Notified items

At a price review, Ofwat may identify items that could have an impact on the companies’ turnover. There may be uncertainty about whether the items will materialise, or about the size of any impact if they do. Ofwat can formally acknowledge the extent to which these items have been allowed for by recording them as notified items in the determination.

If, as a result of a factor identified in a notified item, actual costs or revenues differ from the levels assumed in the determination, these differences can trigger an interim determination.

In its final determination of price limits for the period 2005-10, Ofwat set out the following notified items:

- A variation (increase or shortfall) in the number of customers requesting meters, free of installation charge, compared with the numbers assumed when price limits were set.
- Increases in bad debt and the costs of managing debt. At the 1999 price review, this notified item was explicitly linked to the prohibition on disconnection of domestic premises for the non-payment of bills. The text of the notified item has now been modified because Ofwat acknowledges that the prohibition is only one element of the environment in which the water and sewerage companies operate. Ofwat does not expect this notified item to be necessary after 2009.
- Increases in charges for abstractions and discharges to controlled waters. The Environment Agency had consulted on changes to the abstraction charges scheme, but the outcome remained uncertain at the time of the final determination and companies could face increases in costs above those assumed in price

limits. Charges for discharges to controlled waters could also change as the result of a ruling by the Court of Appeal in 2001, although where such costs were known they were incorporated in price limits.

- Charges for lane rental/traffic management, which could result from the Traffic Management Act 2004 or from the conclusion of two trials of a lane rental system. The impact of these potential charges was uncertain at the time of the final determination, although efficient companies can request a revision to price limits if the impact is significant.
- Increases in the taxation of infrastructure expenditure arising from the introduction of International Financial Reporting Standards. Once again, the impact of this change is uncertain, but Ofwat took the view that companies should be protected from any resulting significant changes in taxation costs. Companies are expected to behave in a tax efficient way and to pursue the solution best designed to minimise the impact of tax changes on customers' bills.

Logging up and down in England and Wales

The Commissioner then set out the process of logging up and down which Ofwat uses to recognise more minor changes that are outside the control of management. Whereas an interim determination occurs between reviews, logging up and down is an adjustment that takes place at the end of the regulatory control period to reflect differences in cost from the original determination. Such differences will have an impact on prices only in the next regulatory control period.

In June 2002, Ofwat issued a consultation paper on logging up and down². The paper describes the logging up and down process as follows:

“Between periodic reviews there may be changes to the outputs that a company is required to deliver. Where a change, either in terms of additional obligations or the removal of obligations, is material this can trigger an interim determination of price limits. If the change is not sufficient to trigger an interim determination (or if a

company or we choose not to seek one), we provide a mechanism for the company to 'log up' any reasonable net additional costs to be taken into account at the next periodic review. Similarly reductions in outputs required are 'logged down'.”

The consultation paper continues:

“The logging up and down process deals primarily with smaller changes to the items specified in the licence. The logging up mechanism is not specifically included in companies' licences although such a mechanism is implied by the need to reflect in the periodic review the actual circumstances faced by companies.

The net amount of logged up capital expenditure taken into account at the 1999 periodic review was around £600m. A similar amount was logged up at the 1994 periodic review. Additional operating costs arising from changes to the quality enhancement programme, which arose in the period 1995-96 to 1999-2000 were £21m.

There are differences in the way the logging up and interim determination processes deal with changes in revenues and costs. The interim determination mechanism treats the changes as if they had been known when we originally set price limits. The logging up mechanism takes into account the financial impacts of the changes from the start of the next price setting period only.

The shortfalls process deals with delays in delivering outputs compared to the assumptions we made when we set price limits. There are differences in the way in which we treat logging down of outputs and shortfalls in outputs.”

The rationale for interim determinations and logging up and down

The Commissioner explained the rationale for interim determinations and logging up and down. Carrying out a regulatory review involves setting charge caps, or revenue caps, to cover a period of four or five years in the future. The regulatory review process typically begins two years before the end of the current regulatory control period.

² See the guidance that Ofwat provided in MD203, Interim determinations 2005¹, 10 May 2005, www.ofwat.gov.uk.

Charge cap setting is therefore a forward-looking process. The Commissioner noted that in Scotland this means that judgments have to be made about the appropriate level of costs up to six years hence.

The Commissioner stressed that an interim determination of charges should only be sought if the circumstances of the adjustment were truly outside the control of management. Examples of factors that the Commissioner considered to be within and outside the control of management are outlined in Table 28.1.

Table 28.1: Examples of factors within and outside the control of management

Within management's control	Outside management's control
Obtaining planning permission	Changes in planning law
Inflation risks caused by advancing or delaying the delivery of the investment programme	Capital inflation difference on planned schedule of investment delivery
	Legal changes
	Price increases caused by regulatory settlements for electricity (to the extent not captured in inflation indices)

The Commissioner noted that managers cannot control all of a firm's costs and cannot influence all of a firm's revenues. Customers would benefit, however, if managers were encouraged to improve those things that they can control, either to reduce the firm's costs or to secure revenues. By contrast, there would be no benefit to customers if managers were punished or rewarded for things that were outside their control.

The Commissioner highlighted two situations in which regulators might consider taking action between reviews if their assumptions turn out to be inaccurate. On the one hand it is possible that:

- costs are significantly higher, or revenues are significantly lower, than was assumed at the review; and
- managers had no control over the causes of the higher costs or lower revenues and had no way to address the issue once it had arisen.

In such cases, the incentives placed on managers are not improved by forcing the company to operate within the charge caps or revenue caps decided at the determination. Instead, there is a case for the regulator to make an adjustment to increase the price cap or revenue cap.

On the other hand, it is possible that:

- costs are significantly lower, or revenues are significantly higher, than was assumed at the review; and
- managers had no responsibility for the causes of the lower costs or higher revenues.

In such cases there is no justification for allowing the charge caps or revenue caps that were decided at the determination. Instead, there is a case for the regulator to make an adjustment to reduce the company's price cap or revenue cap and to pass the benefit to customers.

For interim determinations in England and Wales³, Ofwat requires the impact on the firm from a change in circumstances to pass a materiality threshold. This ensures that customers do not see continuous small changes in charges relative to those that were agreed at the determination.

Smaller changes in costs and revenues which do not pass the materiality threshold, but which may nevertheless have a significant impact on the firm, are dealt with at the next review through logging up and down. This ensures that customers pay charges that reflect costs.

The Commissioner also explained that the logging up and down mechanism has important incentive properties in the regulatory capital value approach to price setting. Managers know that if they fail to make the investments they have promised, and fail to deliver the outputs that customers expect, this will affect the company's RCV at the next review. If a company does not deliver the agreed capital programme, the RCV would be adjusted downwards to reflect both the non-delivered items and any timing difference in the delivery. A lower RCV will

³ A short-hand acronym 'IDOK' (interim determination of 'K', the price limit) is sometimes used by commentators for interim determinations.

result in Ofwat setting lower prices. Managers therefore have an incentive to deliver the agreed programme of investment and to ensure that the investment provides customers with the outputs that are expected.

The mechanics of interim determinations in Scotland

The Commissioner proposed that the interim determination process in Scotland should consist of a number of well-defined steps. An important feature of these steps is that they are transparent. The Commissioner suggested that all requests for a change in the charge cap between regulatory reviews should be published. He also suggested that the new Commission should publish its assessment of the cost and revenue impacts of the notified items that it includes in its final determination. In addition, before any charge cap is changed, the Commission should consult with industry stakeholders and customers.

The Commissioner noted that such transparency is important to the regulatory framework. Regulation provides customers with certainty by setting charge caps for a period of time. If the Commission changes charge caps before the next regulatory review, it risks causing uncertainty and inconvenience to customers. It also risks undermining the credibility of the charge caps that are set at future reviews.

The Commissioner continued by explaining that the Commission could avoid these problems by explaining clearly to customers that any changes to charge caps or revenue caps between reviews would be made according to a well-defined process that is based on a clear set of rules.

The proposed steps in the approach to an interim determination would be as follows.

Step 1: The interim determination must be initiated

Either Scottish Water or the Commission can submit a notice for an interim determination. If either does, the other can submit a counter claim within a limited period. Scottish Water must request an interim determination by

1 October of the year before the charging year for which it is seeking revised price limits. The charging year begins on 1 April each year. It follows that, for example, if Scottish Water wished to have its charges revised for April 2007, it would have to apply for an interim determination before 1 October 2006.

Step 2: The Commission confirms that the factors that form the basis of the claim are within the current notified items

Following a request for an interim determination, the Commission would confirm that the declared factors fall within the current definitions of notified items. The list of notified items for Scottish Water was more extensive than it is for the companies in England and Wales because Scottish Water does not have a licence.

Changes that affect the economy in general, for example the April 2003 change in National Insurance contributions, are picked up in the RPI element of the price cap. A company could not, therefore, use this factor to request an interim determination. If general factors such as this were included in the interim determination, their effect would be double counted.

Step 3: For all factors taken together, the Commission applies a materiality test

The Commissioner believed that the materiality threshold which is applied by Ofwat would also be appropriate for the Scottish water industry. This means that the combined net present value (NPV) of all of the factors must be more than 10% of Scottish Water's turnover. The Commissioner noted, however, that it may not be appropriate in the Scottish context to apply the triviality threshold to individual variances, which is what happens in England and Wales⁴. This is in recognition of the financial framework within which Scottish Water operates. So, for example, if one factor is worth 3.5% of turnover, another is worth 6.5% and a third is worth 0.5%, the total effect is 10.5%. This is sufficient to trigger an interim determination because the sum of all three factors is greater than 10% of turnover.

The test is applied by calculating the NPV of the change in cash flows that result from the factors.

⁴ If the impact of one factor is less than 1% of a company's turnover, Ofwat does not include that factor in the interim determination calculations.

- If costs are higher than forecast, the difference between forecast costs and actual costs is estimated. In the case of operating costs, the Commission would estimate the difference over a ten-year period and discount future costs at Scottish Water's allowed rate of return. In the case of capital costs, the difference would be estimated for a period of 15 years from when the investment was made and discounted at Scottish Water's allowed for rate of return.
- If revenues are lower than forecast, the difference between forecast revenues and actual revenues is estimated. The difference is estimated for a period of 15 years from when revenues fell below the forecast level. Again, this would be discounted at Scottish Water's allowed rate of return.

The Commissioner commented that, in effect, his proposals would mean that an interim determination could be triggered if there was more than an annual change in costs of around £12 million that was caused by factors outside the control of managers.

Step 4: Revised price limits are calculated

If the materiality threshold is passed, the Commission would calculate the required change to charges to recover the additional costs or allow for the reduction in costs. The Commissioner proposed that the Commission should make its decision on changes to charge limits within three months of a request.

Step 5: Scottish Water may appeal to the Competition Commission

If Scottish Water does not accept the Commission's assessment it may refer the issue to the Competition Commission.

Logging up and down in Scotland

The Commissioner proposed to adopt the broad principles of logging up and down that are used in England and Wales. However, he noted that they would need to be adapted to the financial framework within

which Scottish Water operates. In its response to the Commissioner's methodology consultation, Scottish Water responded positively to the proposal to introduce logging up and down and interim determinations. It also asked if the Commissioner would provide it with an annual statement of the items that had been noted as being outside the regulatory contract.

The Commissioner agreed with this suggestion. He proposed that the Commission should ask Scottish Water twice a year to identify any factors (outside the control of management) that had had an impact on its costs (either increasing or decreasing costs). In his opinion, the Commission could review these claims and within three months provide Scottish Water with a statement of its view. The Commission could also identify any factors that were not raised by Scottish Water.

The Commissioner explained that, if these factors reached the threshold for an interim determination, either Scottish Water or the Commission could initiate the process described above. In the interim, he suggested that Ministers should be prepared to increase their lending to Scottish Water by the value of the additional costs that Scottish Water had incurred. As a maximum, Scottish Ministers would have to retain a reserve of £40 million from the lending that they were prepared to make available to the industry to meet their objectives.

The Commissioner expressed his view that Scottish Ministers should only release this lending after the new Commission has published its assessment of Scottish Water's claims of additional costs and agreed that additional lending was an appropriate response. He also noted that there appeared to be quite ambitious assumptions on the outputs that may be required in the funded investment programme. This could, he argued, reduce (perhaps entirely) the need for this reserve of public expenditure⁵.

In the event that an interim determination is not triggered, any variances in costs that are outside the control of management would be taken into account at the next Strategic Review of Charges.

⁵ For example, the lead pipe replacement programme.

This chapter now continues with an outline of the Commissioner's proposed approach to handling outperformance of the regulatory contract by Scottish Water. As noted above, the Commissioner considered that it was essential to ensure that Scottish Water faces a hard budgetary constraint throughout the regulatory control period.

The regulatory contract

The Commissioner explained that the 2006-10 determination of charges should be seen as an agreement between customers and Scottish Water about the level of service that would be provided during the period.

The Commissioner believed that the draft determination allowed Scottish Water to raise sufficient revenue from customers to deliver ministerial objectives and provide an improving level of service to customers. He considered that this level of revenue was sufficient to ensure that both the Ministers' 'essential' and 'desirable' objectives for the industry could be met in full.

The Commissioner emphasised that the level of revenue allowed for reflected his expectation that customer service and asset performance (including leakage) would improve towards the current average level of performance south of the border. The Commissioner set out his views on the improvement in the level of customer service performance that he expected in his draft determination. The Commissioner proposed that Scottish Water's customer service performance should be measured using the overall performance assessment (OPA) system that Ofwat has developed. The Commissioner set milestones for improvement in customer service which, he believed, could be achieved by Scottish Water given the level of operating cost that he had allowed for.

Outperformance of the regulatory contract

The Commissioner explained that the regulatory framework could deal with outperformance by the private companies south of the border during the regulatory control period.

In the private sector, each utility has a licence to operate which requires it to meet standards of operation that are considered appropriate in terms of social, environmental and public health objectives. The economic regulator takes account of all such issues in determining the appropriate level of prices. This determination defines the regulatory contract for a number of years.

Under the traditional approach to incentive-based regulation, a business has an incentive to meet its targets as efficiently as it can manage because it is permitted to retain the difference between the revenue from the limit on charges and the actual cost of meeting its targets. This can increase the dividends available to shareholders. The benefit is eventually passed on to customers as charge limits in the following regulatory control period are set at a level that reflects any extra efficiency gains secured by the business in the preceding period. Over time, this approach has been found to deliver higher standards at lower cost than does regulation based on setting higher, more aspirational targets.

In the private sector, regulators rely on shareholders to exert pressure on management to outperform efficiency targets. More recently, however, the creation of the not-for-dividend companies Glas Cymru and Network Rail has led regulators to consider the impact of incentive-based regulation on companies that do not have shareholders.

The founders and senior management of Glas Cymru made a commitment to create a reserve with some of the proceeds of outperformance. They also committed themselves to using some of the proceeds from outperformance to provide rebates to customers within the regulatory control period. Rebates were paid as soon as the company was in a strong financial position. Glas Cymru's customers have enjoyed two such rebates. The Commissioner believed that from a customer perspective there was much to commend this approach.

In his draft determination, the Commissioner built on Glas Cymru's approach while taking full account of Scottish Water's particular circumstances. The Commissioner set out his approach to handling outperformance in his second open letter to the Scottish Ministers⁶. His preferred approach was to build up a financial buffer with

⁶ A copy of this letter is available on our website - www.watercommission.co.uk.

the proceeds of outperformance⁷. This could be held in index-linked government gilts. The Commissioner recognised that such a mechanism may take time to develop and suggested an initial approach which would see Scottish Water foregoing a portion of its revenue cap if it outperformed. He expected that Scottish Water would want to accept a lower charge cap in future years if it had been able to outperform its regulatory contract.

The Commissioner recognised the importance of transparent and effective incentives in encouraging Scottish Water to deliver the required level of performance at the lowest reasonable overall cost. In the Commissioner's view, this would require the Scottish Executive, Scottish Water and the quality regulators to establish satisfactory ways to measure delivery of specific outputs. The Commission's views on Scottish Water's required level of financial and customer service performance should, he argued, be set out in the final determination. The Commissioner recommended that the success of Scottish Water's management should be judged by the extent to which it delivered these outputs so that it could forego some of the allowed for revenue.

The Commissioner recognised that the detail of any incentives for Scottish Water's managers would be a matter for the Scottish Executive and Scottish Water to settle in the particular context of a publicly owned business. His view was that, from a customer perspective, any approach would need to be founded on the principle of bonuses only being paid once Scottish Water's performance had exceeded the minimum acceptable level of performance set in the final determination. In the Commissioner's view, there would need to be a direct and transparent link, published in advance, between the bonuses available to senior management and improvements beyond the minimum acceptable level of performance.

The Commissioner highlighted that if Scottish Water foregoes a proportion of its charge cap, it would be able to bring forward any unused portion to a future year's charge cap were it to be required. The Commissioner proposed to comment on the scope for Scottish Water to forego some part of its charges cap in his annual performance reports. The scope to forego part of the

charges cap would require not only that Scottish Water meets the financial terms of the determination of charges, but also its investment delivery obligations and the requirement to improve the level of service to customers.

Scottish Water's response to the Commissioner's second open letter

In its response to the Commissioner's second open letter to Ministers, Scottish Water agreed that incentive-based regulation was appropriate in the Scottish context. It expressed concerns, however, that there should be an appropriate mechanism for interim determinations and that a good management should have the opportunity to outperform the regulatory settlement. The Commissioner considered that by adopting the Ofwat approach to assessing the scope for efficiency and to interim determinations, he had addressed Scottish Water's concerns on these issues.

In its response, Scottish Water asserted that the Commissioner's proposal that outperformance should reduce future charge caps would limit the opportunities for it to let long-term contracts. The Commissioner expressed some surprise at this argument. He noted that the customer rebates that Glas Cymru offered did not seem to have affected Welsh Water's ability to let long-term contracts. The Commissioner could see no obvious reason why a management would seek to enter a contract that would not allow it to meet its regulatory targets. He commented that if such a contract guaranteed future outperformance at the expense of underperformance in the first year or two, there would be no reason why this could not be taken into account in the annual assessment of performance.

Scottish Water also suggested that any outperformance should be re-invested to improve the level of service that is provided to customers. The Commissioner stated that in principle he would have no problem with this suggestion – provided that Ministers agreed to change their objectives for the industry and that the incremental benefits of this investment were clearly defined in advance and measurable using the OPA methodology.

Scottish Water also argued that it is financially less strong than Welsh Water and would therefore need to

⁷ Full details of the options considered by the Commissioner are available in Volume 4 of the draft determination; Chapter 6 (page 38).

build up its reserves before it could forego any part of its revenue cap. The Commissioner was not persuaded by this line of argument. His analysis suggested that Scottish Water’s proposed financial ratios during this regulatory control period appeared to be healthier than those of Welsh Water. Welsh Water’s financial ratios for 2003-04 are set out in Table 28.2.

Table 28.2: Welsh Water’s financial ratios in 2003-04

Financial ratio	Value
Cash interest cover	1.60
Adjusted cash interest cover	0.72
Funds from operations/debt	4.74%
Retained cash flow/debt	4.09%
Net debt/RCV	83.40%

Scottish Water asserted that it would be useful to develop a financial buffer as an insurance against operational shocks. As noted above, proposals for doing so had been included in the Commissioner’s second open letter to Ministers. The Commissioner warned, however, that such a reserve should only be accessed with the prior agreement of the new Commission. It was not a reserve that could be accessed at the sole discretion of management.

In its response to the Commissioner’s open letter, Scottish Water made reference to the considerable financial buffer that Welsh Water has developed. This financial buffer is somewhat different from that which the Commissioner proposed in his second open letter. In the case of Welsh Water, the financial buffer is the unleveraged portion of the RCV (ie the extent to which the RCV exceeds the outstanding debt). The Commissioner noted that Scottish Water’s potential extra borrowing capacity, measured in this way, was greater than that of Welsh Water. The difference is that Welsh Water has access to an extra credit line if it encounters problems and Scottish Water has no such commitment from the Scottish Ministers. However, if Scottish Water encounters a problem that is outside the control of

management, the regulatory framework in Scotland will be able to respond just as effectively as the framework in England and Wales. If the problem is within the control of management, then it is a matter for the Scottish Executive to resolve. Table 28.3 compares the situations for Scottish Water and Welsh Water should there be an unexpected cost event.

Table 28.3: Comparison of Scottish Water and Welsh Water’s situation if there is an unexpected cost event

	Scottish Water	Welsh Water
Managers can control	<p>Regulator will prevent customers from paying for failure.</p> <p>Ability to outperform other regulatory assumptions to compensate.</p> <p>Additional injection of capital required. Onus would be on Scottish Ministers to provide the necessary funding, although there is no guarantee that this would be made available.</p> <p>Debt:RCV ratio would worsen, reducing financial strength. Scottish Water would ultimately be answerable to Parliament through the Scottish Executive⁸.</p>	<p>Regulator will prevent customers from paying for failure.</p> <p>Ability to outperform other regulatory assumptions to compensate.</p> <p>Additional injection of capital required. Banks required to provide funding as part of pre-agreed credit facility.</p> <p>Debt:RCV would worsen, reducing financial strength and the market’s view of the company.</p>
Managers cannot control	<p>Interim determinations available to company if effect is material.</p> <p>Logging up/down at the following Strategic Review of immaterial downside.</p> <p>No effect on the long-term financial strength of the company.</p>	<p>Interim determinations available to company if effect is material.</p> <p>Logging up/down at the following Strategic Review of immaterial downside.</p> <p>No effect on the long-term financial strength of the company.</p>

The Commissioner did not consider as sensible the suggestion in Scottish Water’s second draft business plan that it should raise £140 million in additional revenue from customers in order to manage unforeseen risks of a broadly similar magnitude. In effect, this proposal would require customers to pay in advance in case some unforeseen events (some within the control of management) occurred.

⁸ Assumes that capital outputs slip as a consequence of financial pressures.

How the Commissioner's approach to outperformance would have worked

Under the Commissioner's proposals, the new Commission would take two steps to confirm that Scottish Water had met the terms of its regulatory contract.

- The Commission would assess whether the minimum acceptable levels of performance had been achieved. This would include levels of customer service, environmental and public health compliance and the costs that underpin the charge caps set out in the determination.
- It would review performance in delivering the capital programme, indicating any variance from the agreed delivery profile (including any implications for public expenditure).

The Commission's annual costs and performance report would set out Scottish Water's financial performance for that year. This would reveal whether Scottish Water had achieved the minimum acceptable level of performance. It would also identify the scope that Scottish Water had to reduce charge caps in the subsequent year. As an example, the costs and performance report 2006-07 (the first year of the next review period) will be published in October 2007⁹. This would allow Scottish Water sufficient time for the 2008-09 charges scheme to reflect lower charge caps than indicated in the determination. Scottish Water should only seek to accept a lower charges cap if it has been successful in achieving the required level of service and environmental and public health compliance at a lower cost than set out in the determination of charges.

The annual levels of service report would set out the Commission's overall performance assessment, and report on Scottish Water's performance relative to the milestones outlined in the final determination.

The annual investment and asset management report would set out the Commission's assessment of Scottish Water's delivery of the planned capital programme. The Commission would consult the Scottish Environment Protection Agency and the Drinking Water Quality Regulator in preparing its report to ensure that they are content with the level of compliance relative to their expectations at the start of the review period.

The Commissioner proposed that if Scottish Water were to reduce its operating costs by £10 million more than was included in charge limits, it could return this £10 million (less an appropriate allowance for employees' bonuses¹⁰) to customers in the form of a lower charge cap in the subsequent year.

Similarly, the Commissioner proposed that if Scottish Water delivered its planned capital programme at £10 million less than was included in charge limits, the RCV would be adjusted. A proportion of the savings (again after an allowance for employees' bonuses) would be available for further investment (for example in improving customer service); a further proportion could be made available for spend to save purposes; the remainder (after adjusting for operating costs etc) could be returned to customers. The Commissioner proposed to adopt the same approach as Ofwat uses to calculate the extent of capital expenditure outperformance. The Commissioner also proposed to make similar adjustments to the RCV to reflect this better than expected performance.

The Commissioner noted that it was likely to be difficult – especially in the early years of the regulatory control period – to be certain that Scottish Water would outperform in capital expenditure. Therefore, unless there were compelling reasons to review performance on capital expenditure during the regulatory control period, the Commissioner believed that performance in capital expenditure would best be addressed at the next Strategic Review.

⁹ In light of the significance of the costs and performance report, The commissioner proposed to make it available to Scottish Water well ahead of publication.

¹⁰ We would expect this allowance to be agreed between the Remuneration Committee of the Scottish Water Board and the Scottish Executive.

Conclusion

In the draft determination, the Commissioner set out his view that interim determinations and the logging up and down process could act as an important safeguard for customers and for Scottish Water. He explained that they would help to reduce operating risk. They would also help to ensure that the regulatory contract contains a hard budgetary constraint, so customers pay no more than is necessary and reasonable given the objectives for the industry set by Ministers. As such, Scottish Water should have a clear incentive to deliver the outputs that are included in the regulatory price settlement.

The Commissioner commented that it was important to differentiate between the need for a regulatory framework that is sufficiently flexible to deal with unexpected events that are outside the control of management and the need for an owner to manage underperformance relative to a determination of charges.

The framework that the Commissioner described would allow Scottish Water to be confident that funds would be available to deal with any unexpected costs that it could not control. This framework is essentially the same as that which exists south of the border.

The Commissioner made it clear that underperformance by Scottish Water should not have an adverse impact on the level of charges faced by customers. If Scottish Water underperforms the terms of the determination of charges, this is a matter that should be resolved between Scottish Water and its owner, the Scottish Executive.

In this chapter we have also outlined how the Commissioner intended to measure and report on outperformance. He commented that it was important to regard the determination of charges as a regulatory contract. Scottish Water would be allowed to collect a level of charges from its customers that would be sufficient (together with the available borrowing) to deliver the Ministers' objectives for the water industry. It should therefore deliver these benefits to charge payers.

The Commissioner believed that Scottish Water had the same scope to outperform his draft determination as would be available to any company that is regulated by Ofwat. In his view, Scottish Water should take a lead from Welsh Water and return any such outperformance to customers by accepting less revenue in a future year. Scottish Water would certainly have the financial strength to make this a prudent course of action. The Commissioner did note, however, that for such an approach to work, managerial incentives would have to be linked to outperformance of the determination of charges in a direct and transparent way.

Chapter 29:

New information since the draft determination was published

Introduction

In July 2005, we met the Scottish Executive to discuss developments in the regulatory framework that were suggested in the draft determination. We wanted to emphasise the importance of maintaining a hard budgetary constraint and to underline our view that, in a public sector context, this required the Scottish Executive to explain how it would deal with outperformance. We were keen to ensure that there was clarity about the treatment of any outperformance.

We explained that we would expect Scottish Water's Board to respond to the hard budgetary constraint by aligning the key performance indicators that it sets for the executive management with the outcome of the Strategic Review of Charges. This would be consistent with the incentive schemes that have been put in place for the management of Network Rail and Glas Cymru. We also expressed our view that the Scottish Water Board should welcome the development of a buffer that would protect the organisation from any operational shocks.

In September 2005, the Scottish Executive made its representation on the draft determination. In its representation, the Scottish Executive acknowledged the Commissioner's proposal to introduce incentive based regulation. In response, we have examined a key element of Ofwat's incentive based regulatory framework – the rolling incentive mechanism – and its applicability to Scotland.

The importance of the hard budgetary constraint

We explained that regulators set price or revenue caps in order to create a hard budgetary constraint for the regulated company. As a result, most regulated companies are subject to pressure from shareholders to outperform the regulatory settlement. We noted that the regulator was effectively setting a minimum acceptable level of performance. We also explained that we consider it essential that both the owner of Scottish

Water and the Board recognise that the regulatory settlement (or contract between the regulated company and its customers) constitutes the minimum acceptable level of performance.

We explained the situation south of the border. Ofwat allows the privatised companies an allowed rate of return on their RCV. A company Board may decide that it is content to increase the proportion of its RCV that is funded by debt. This may reflect the potential tax advantage of debt funding, or it may be that the owners are content to incur a higher risk and, consequently, to earn a higher return.

The decision to increase debt in order to engineer a lower cost of capital is clearly different from a situation where the company has to take on more debt than planned (or to reduce dividends) to compensate for performance that is falling below the level that was agreed in the regulatory contract. The owner effectively has to decide whether to accept a lower return now or to accept a higher degree of risk for the same return while performance issues are addressed.

It was important to note that Ofwat would not adjust prices upwards to compensate for a failure by the regulated company to meet its obligations under the regulatory contract. As a result, there is no danger that customers would be asked to pay twice for the same promised improvements. Shareholders bear the risk. We contrasted this with the public sector model where the risk is borne by the Scottish Executive as Scottish Water's de facto owner.

We explained that we would set charge caps such that if Scottish Water meets the minimum levels of performance that are set in the final determination, it will be in a financially sustainable position. The levels of performance that are set out in the regulatory contract are mandatory, not aspirational. The Board must understand that there can be no recourse to customers in the event of a failure to deliver the agreed levels of service and investment outputs.

We went on to outline the RCV method of price setting. We explained that this method does not require the regulator to fix the level of debt that the regulated company borrows. The regulator sets the conditions where a well-managed company can continue to finance its functions. A company can finance its functions by reinvesting post-tax surpluses or by adding long-term debt. However, an organisation cannot routinely borrow if it does not meet the minimum levels of performance that are agreed in the regulatory contract. This would not be consistent with the organisation's long-term financial sustainability.

We noted that there may be circumstances in which the achievement of efficiencies is temporarily delayed or the capital programme is delivered more quickly than expected. In such circumstances, the owner may choose to allow Scottish Water to borrow a little more in that year. We reiterated the Commissioner's view that the owner should only make such extra borrowing available if the Board of Scottish Water can present a business plan demonstrating that performance during the regulatory control period will still meet the minimum acceptable level.

Establishing a buffer to absorb operational shocks

We explained how, at the current time, Scottish Water's customers are more immediately exposed than customers in England and Wales to the financial risks of the business. In England and Wales, the presence of private equity acts as a significant shock absorber, and as a result protects customers. A good example of this is the cost of the drought in Yorkshire in 1995 (approximately £250 million), which had to be absorbed by the equity holders of Yorkshire Water. Other companies have experienced similar operational shocks, the cost of which has had to be borne by shareholders.

We suggested that the Scottish Executive could learn from the creation of the not-for-dividend companies Glas Cymru and Network Rail. Both companies are funded by a combination of debt and retained earnings. It is critical that they maintain a robust financial position as a weakening of their position is likely to lead to an increase in their funding costs and a reduction in their ability to withstand an operational shock.

Options for establishing a hard budgetary constraint in a public sector model

We explained that to be fully effective, the hard budgetary constraint required detailed scrutiny of the level of service and investment outputs that are actually delivered, as well as limiting the resources that are available to deliver that level of service. The regulatory regime south of the border recognises this. Ofwat would adjust prices downwards for the next regulatory control period if it believed that the agreed level of service or the agreed investment outputs had not been delivered. Such an adjustment would reduce the return that is available to equity holders.

We advised that each time Scottish Water asks to borrow (within its agreed facility), the Scottish Executive should seek assurances that it is on track to at least match the regulatory contract. It may also be appropriate to seek confirmation (perhaps on an annual basis) from the Commission and from the quality regulators that the agreed level of service and investment outputs have been delivered.

We also advised the Scottish Executive to consider holding regular meetings with Scottish Water's non-executive Directors, at which the Executive would seek confirmation that the non-executive Directors believe that Scottish Water is on track to meet its obligations.

Options to establish a buffer to withstand operational shocks

During our meeting with the Scottish Executive, we set out four ways in which we could develop a buffer to withstand operational shocks. These were to use the revenue flexibility generated by outperformance of the regulatory contract in order to:

- improve financial ratios by borrowing less;
- buy a safe, liquid asset;
- pay dividends to a contingency fund held by the Scottish Executive; and
- accelerate the investment programme.

We advised that rigorous monitoring would be essential in each case. Customers would want to be assured that good performance in one year is not likely to be followed by a less committed effort in subsequent years of the regulatory control period. It would be important to emphasise that outperformance remains as customers' money and that it is in effect an insurance policy against an unexpected operational shock. The extent of any outperformance should be measured by the regulators and confirmed by the Reporter. This outperformance should be ring-fenced to create the buffer.

We suggested that a clear target for this buffer should be established (at perhaps around £300 million), but that it is made clear that any further outperformance would be distributed to customers in the form of lower prices than would otherwise have been necessary.

Improve financial ratios by borrowing less

We noted that Scottish Water had made significant progress towards achieving financial sustainability. One potential way forward would be for Scottish Water to borrow less and improve its financial ratios more quickly than was likely to be assumed in the final determination.

Advantages of this approach

We noted that this would be the cheapest way to create and maintain a buffer. The improvement in the debt to RCV ratio would be quite transparent. The financial strength of Glas Cymru would provide a useful comparator.

Disadvantages of this approach

We noted that such an approach could be difficult to explain to customers and other stakeholders. In the past, some stakeholders have questioned why debt, if it is available, should not be used to reduce current prices. It would inevitably be more difficult to respond to the pressure to lower charges and increase borrowing if significant progress had been made in building up a buffer.

We set out a second disadvantage of this approach. This is that it could require the Scottish Executive to make what may potentially be substantial borrowing capacity available at relatively short notice in the event of an operational shock.

Buy a safe, liquid asset

We proposed that it would be possible to buy an index-linked gilt with the revenue flexibility generated by outperformance. These investments would only be sold in the event that there was an operational shock outside the control of management. We noted that although the buffer would clearly belong to Scottish Water (and its customers), it would be important for decisions to release some or all of this reserve to be taken by Ministers. We suggested that Ministers may want to consult us before taking a decision to release funds from the buffer.

We explained that there is a precedent for this approach in the Post Office, which invested a proportion of its operating surplus in government gilts.

Advantages of this approach

We explained that this approach had the advantage that Scottish Water would retain the proceeds of outperformance. We believe that increasing the size of this financial buffer is likely to have a significant incentive effect on Scottish Water and could represent a highly transparent way to measure management performance.

We noted that, if there is an operational shock, this option is the only one where a response is likely to be relatively unproblematic. The other options would entail either the Scottish Executive finding funding at short notice or taking difficult decisions about delays in investment.

Disadvantages of this approach

We explained that this is a very slightly higher cost option for customers since the yield on an index-linked gilt is very slightly lower than the cost of public sector borrowing for an equivalent term.

Pay dividends to a contingency fund held by the Scottish Executive

We set out a third option whereby Scottish Water pays dividends to the Scottish Executive with the proceeds of any outperformance. This option would require the Scottish Executive to hypothecate any dividends such that they could be used to cover the cost of any future operational shock.

Advantages of this approach

We explained that the payment of dividends would mean that the Scottish Executive is remunerated for the risk that it runs as owner of Scottish Water.

Disadvantages of this approach

We did not recommend this option as we consider that it is less transparent than the first two options. We also noted that it may be more expensive for customers and that it places the onus on the Scottish Executive to manage the contingency fund.

Accelerate the investment programme

We explained a fourth potential option. This would be to accelerate the delivery of the agreed investment outputs in the baseline programme.

Advantages of this approach

We noted that there are clear benefits from improving the levels of service to customers or environmental and public health compliance more quickly.

Disadvantages of this approach

We commented that this approach may reduce the transparency of the capital programme baseline. It was also unlikely to be desirable to allow phasing of the capital programme to be the buffer against operational shocks.

Moreover, in our view this option may be difficult to implement. It is possible to conceive how outperformance in delivering investment outputs may reasonably increase or accelerate the capital programme. However, it is difficult to see how outperformance in operating costs

could be added to the capital programme. We expressed a concern that Scottish Water was likely to be required to undertake a very large capital programme. There may therefore be no scope to accelerate investment without incurring a cost in efficiency terms.

We also explained that, in the absence of an agreed approach to establishing a financial buffer, it would be necessary to return the proceeds of outperformance to customers. This may allow customers to enjoy lower bills as a direct result of outperformance by Scottish Water; however, it would also mean that they were immediately exposed to the financial risk of an operational shock. We expressed a view that the status quo was not desirable.

Mechanisms for incentivising outperformance

In its representations on the draft determination the Scottish Executive agreed to the creation of a financial buffer, and has made it clear that it intends to respect the hard budgetary constraint that the regulator sets. Following the Scottish Executive's representation, we have considered the introduction of a rolling incentive mechanism to encourage outperformance.

The chapter concludes with a summary of the background to rolling incentive mechanisms.

Rolling incentive mechanisms

In the early years of UK utility regulation, the benefits of outperformance by companies against regulatory targets were transferred to customers at the end of each regulatory period, irrespective of when during that period the outperformance had occurred. This meant that companies had a greater incentive to outperform in the initial years of the five-year review period than in the later years. The more costs that could be saved in earlier years, the more value accrued to the company.

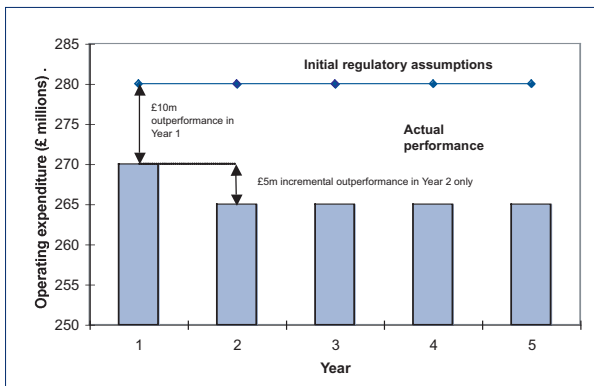
In its 1999 price review, Ofwat proposed a rolling incentive mechanism, which it believed would strengthen incentives for the companies. The mechanism allows companies to keep the benefit of outperformance of targets for a full five-year period, irrespective of when the savings are made. It is only after a period of five years that the benefit of any outperformance is passed to customers.

There are some differences between Ofwat's rolling incentive mechanism for capital expenditure and the mechanism for operating expenditure. We describe the two mechanisms below.

Operating expenditure

The operating expenditure rolling incentive mechanism rewards year-by-year incremental outperformance (ie additional to any incremental outperformance in the previous year). The company is allowed to benefit from this for five years, irrespective of when the incremental saving is made. Atypical and exceptional costs that are incurred by the company, such as restructuring costs, are excluded from the calculation of efficiency. The mechanism considers outperformance at a total company level. Figure 29.1 presents a simple illustrative example of the mechanism.

Figure 29.1: Illustrative example of outperformance – operating expenditure



In Figure 29.1, the initial regulatory assumption for annual operating expenditure for Years 1 to 5 (a regulatory period) is £280 million per year. In Year 1, there is an outperformance of £10 million. The company retains this outperformance as a surplus in its accounts, relative to the regulatory settlement, for Years 1 to 5 inclusive¹. In Year 2, the company achieved a further incremental outperformance – relative to what it achieved in 1999 – of £5 million. This incremental amount (£5 million) is also retained by the company, but for the five Years 2 to 6 inclusive. Year 6 falls in the next regulatory period, so Ofwat would recognise an incentive

allowance of £5 million in the first year of the next period, when it comes to set prices for Years 6 to 10. In this example, there is no further incremental outperformance after Year 2, so no further incentive allowance is recognised when prices are set for Years 6 to 10.

From this example, we can see that the incremental operating outperformance in any year can be retained for a full five years, either in the form of retained surplus during the same review period or in the form of an incentive allowance that is added to the annual required revenue in the following review period.

For further explanation and more detailed examples of the rolling incentive mechanism, please refer to Annex 1 of Ofwat's document *A further consultation on incentive mechanisms: Rewarding future outperformance and handling underperformance of regulatory expectations*, (June 2003.)

Capital expenditure

Ofwat's capital expenditure rolling incentive mechanisms also allows a company to retain the benefit of outperformance against regulatory assumptions for five years, irrespective of when the saving is made. Infrastructure renewals expenditure is, however, excluded. The mechanism calculates outperformance at a service level, looking at water and sewerage services separately.

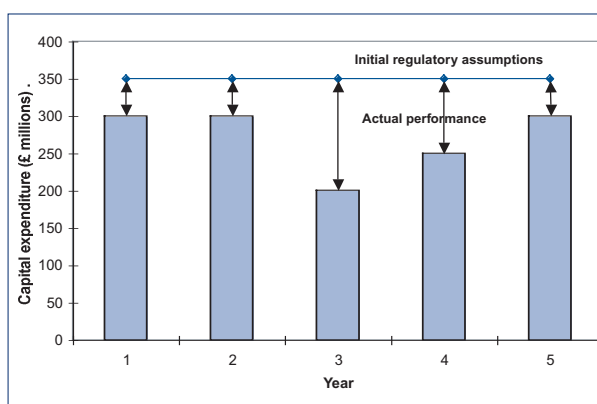
If there were no rolling incentive mechanism, the aggregate of all annual capital expenditure outperformance would be deducted from the opening RCV balance of the first year of the following review period. This would have resulted in the water companies transferring any outperformance of capital efficiency targets to customers at the start of the next regulatory control period. As with operating expenditure, the rolling incentive mechanism spreads the deduction over five years.

Ofwat calculates the net present value of the five years' outperformance and make five equal annual reductions. This avoids fluctuations in the RCV between regulatory reviews.

¹ We have simplified Ofwat's approach for presentational purposes. In practice, performance in Year 0 (the last year of the previous regulatory period) is taken into account, and performance in Year 5 is not. This is because, like other regulators, Ofwat has to carry out its price review before the end of each regulatory period, ie before performance in Year 5 is known.

Figure 29.2 provides another simple example to illustrate the mechanism.

Figure 29.2: Illustrative example of outperformance: capital expenditure



In Figure 29.2, the regulatory assumption of the annual capital expenditure for Years 1 to 5 (the regulatory period) was £350 million per year.

In Year 1, the actual capital expenditure outperforms the regulatory assumption by £50 million. This £50 million outperformance is retained by the company for Years 2 to 5 of the existing regulatory period, and Year 6, the first year of the next price period. However, the company's RCV will be reduced when prices are set for Years 6 to 10, so that outperformance savings can be passed on to customers. The same mechanism applies to outperformance in Year 2. The company retains the benefit in Years 3 to 7 inclusive, but its RCV will be further reduced when prices are next set. Similarly, outperformance in Years 3 to 5 is retained for five years after the year of outperformance, but the RCV will be reduced.

In order to calculate the amount by which the RCV is reduced, the 'present value'² of all of the outperformances carried forward to the next period are calculated and the associated per year deductions established. This process is illustrated in Table 29.1.

Table 29.1: Example calculation of capital expenditure outperformance³ (£ millions)

	Current regulatory period					Following regulatory period				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Initial regulatory assumptions	350	350	350	350	350					
Actual capital expenditure	300	300	200	250	300					
Outperformances per year	50	50	150	100	50					
Outperformance for Year 1	50	50	50	50	50	50				
Outperformance for Year 2		50	50	50	50	50	50			
Outperformance for Year 3			150	150	150	150	150	150		
Outperformance for Year 4				100	100	100	100	100	100	
Outperformance for Year 5					50	50	50	50	50	50
Annual deductions for next regulatory period						400	350	300	150	50
Present value of the annual deductions for the following period at a discount rate of 5%						1,173 ⁴				
Annual deductions to RCV for the following period, which give the equivalent present value of that above ⁵	259	259	259	259	259					

² The present value is the sum of annual values, where a discount factor is applied cumulatively to each year's value. For example, if the discount rate is 5%, the present value of £100 in Year 1, £100 in Year 2 and £100 in Year 3 is $£100 + (£100 \times 0.95) + (£100 \times 0.95 \times 0.95) = £285.25$, where 0.95 is the number used to apply the 5% discount.

³ We have simplified Ofwat's approach for presentational purposes. In practice, performance in Year 0 (the last year of the previous regulatory period) is taken into account, and performance in Year 5 is not. This is because, like other regulators, Ofwat has to carry out its price review before the end of each regulatory period, ie before performance in Year 5 is known.

⁴ The present value of the annual deductions is calculated in this example as (in £ millions) $400 + (350 \times 0.95) + (300 \times 0.95 \times 0.95) + (150 \times 0.95 \times 0.95 \times 0.95) + (50 \times 0.95 \times 0.95 \times 0.95 \times 0.95) = 1173$, where 0.95 is used to apply the 5% discount rate.

⁵ The annual deductions are derived by calculating the annual figure which, when multiplied by the discount factors for each respective year, sum to 1,173 over the five years.

The outperformance gains that are retained by the company after the year in which they occur are shown shaded in Table 32.1. The £259 million in the final row of the table is the annual deduction to the RCV balance.

Annex 2 of Ofwat's June 2003 consultation on incentive mechanisms contains further explanation and examples.

Multipliers

In its June 2003 consultation paper⁶, Ofwat proposed an enhancement to its rolling incentive scheme. This involves applying a multiplier to the incentive allowances resulting from outperformance in the current period so that revenue for the next period is further enhanced. This acts as an enhanced incentive for companies to outperform in the current period. Section 2.2 of Ofwat's document provides further explanation and examples.

Ofwat proposed to apply a multiplier to the top performing companies in order to encourage greater efficiency in the industry. It considered that this would bring benefits to both companies and customers.

Conclusion

We met the Scottish Executive to explain our views on the changes in the regulatory framework that are likely to be required if the public sector model is to be as successful as possible. We set out the importance of establishing a hard budgetary constraint. We went on to outline the advantages and disadvantages of various approaches to establishing a financial buffer. Finally, we explained that it was not in the best interests of customers to leave customers as directly exposed to the financial risks of an operational shock as they currently are.

Following the Scottish Executive's representation on the draft determination, we reviewed the Commissioner's proposals on the introduction of a rolling incentive mechanism⁷. Our conclusions are set out in Chapter 32.

⁶ Ofwat (2003), *A further consultation on incentive mechanisms: Rewarding future outperformance and handling underperformance of regulatory expectations*.

⁷ For further discussion of the rolling incentive mechanism please see Volume 4, Chapter 4 of the methodology document on the Commissioner's draft determination.

Chapter 30:

Scottish Water's representations

Introduction

In the draft determination, the Water Industry Commissioner concluded that the governance and incentive framework was critical to ensuring that Ministers' objectives were delivered at the lowest reasonable overall cost. The Commissioner also highlighted important areas of the governance and incentive framework that he considered needed to be addressed. This chapter sets out Scottish Water's representations in this area.

Interim determinations

An interim determination is a reconsideration of a company's price limits, undertaken between formal price reviews. The Commissioner's draft determination proposed that the interim determination process in Scotland should mirror the system that is used in England and Wales.

Scottish Water commented that there were still uncertainties about this process. It asked us to provide full details of the process in our final determination.

The draft determination set out a number of factors (called 'notified items') which the Commissioner believed could trigger an interim determination. Scottish Water stated that the Water Services etc. (Scotland) Act 2005 required an interim determination to be carried out if there was a 'material change' in Scottish Water's income or expenditure. Scottish Water considered that there are other risks, not included in the list of notified items, which could also cause a material change. Scottish Water suggested that the notified items should not be regarded as an exhaustive list.

In the draft determination, the Commissioner also proposed that there should be a materiality threshold before an interim determination is triggered. He proposed that an interim determination could be triggered if the combined net present value of all factors was more than 10% of Scottish Water's regulated turnover.

In the draft determination, the Commissioner suggested that a £40 million borrowing reserve should be sufficient to ensure that Scottish Water had sufficient funding if cost increases were not sufficiently material to trigger an interim determination.

In its representations, Scottish Water asserted that the calculation of the threshold will depend on whether the effect is caused by a change in operating expenditure, capital expenditure or revenue. Scottish Water argued that the £40 million reserve was inadequate because:

*"the materiality threshold could equate to a cost shock of up to £100 million that would need to be carried before an interim determination could be triggered"*¹.

Scottish Water also commented that the draft determination did not explain how changes in charges would be calculated after an interim determination. Scottish Water argued that the adjustment should be *"such that the financial risk on Scottish Water is minimised"*.

Governance of the borrowing reserve

In the draft determination the Commissioner suggested that Ministers should only allow access to the borrowing reserve after we had had the opportunity to assess Scottish Water's claimed additional costs. Scottish Water commented:

*"This would unduly restrict the normal governance of our business and day to day operations. The purpose of the borrowing reserve should be to protect Scottish Water from financial shocks, specifically to enable us to manage cost shock until an interim determination can be triggered...Scottish Water should have the flexibility to access the borrowing reserve without recourse to the Commission"*².

¹ Scottish Water, "Scottish Water's response to the draft determination", (September 2005) page 153.

² Ibid., page 154.

The risk of exceeding the borrowing reserve

The draft determination made use of risk analysis to assess the likelihood that Scottish Water's would reach the interim determination threshold.

Scottish Water claimed that this analysis underestimated the risk that an interim determination would become necessary. Scottish Water argued that the Commissioner had used only historical information from the companies south of the border and did not assess the specific potential risks that Scottish Water faced.

Scottish Water stated that its own risk analysis had led it to conclude that the probability of breaching the £40 million borrowing reserve during the regulatory control period was substantial.

Customer retained earnings

Scottish Water argued that the draft determination assumed that the return on customer earnings had been netted off against debt. Scottish Water believed that this return should be 'ring-fenced' to help manage the risk faced by Scottish Water.

Outperformance and the equity risk reserve

In the draft determination, the Commissioner proposed the creation of a financial buffer to absorb operational shocks. However, he also acknowledged that it might take time to agree on the details of this proposal. The Commissioner therefore proposed that during the 2006-10 regulatory control period outperformance should be returned to customers.

Scottish Water commented that under the Commissioner's proposals, outperformance might be returned to customers in the year after it is achieved, whereas underperformance may be accumulated over the regulatory period. Scottish Water argued that there should be symmetry in the treatment of outperformance and underperformance and that both should be assessed over the regulatory control period.

Scottish Water also argued that the Commissioner's proposal for an equity risk reserve should not be put on hold, but should be implemented during this regulatory control period.

Regulatory process

Scottish Water commented:

*"... the Q&SIII process and the Strategic Review would also benefit from an independent review, similar to the Baker Review recently carried out for Ofwat on PR04"*³.

Scottish Water also suggested that there should be a forum, comprising Scottish Water, the Water Industry Commission and the Scottish Executive:

*"with a view of clarifying respective roles and responsibilities, improving project management and establishing agreed terms of reference ahead of the 2010 Strategic Review of Charges"*⁴.

Summary of minimum changes

Scottish Water presented a summary of the minimum changes to the draft determination that it considered to be required. Table 30.1 sets out its summary on the issues covered in this chapter.

³ Ibid., page 157.

⁴ Ibid., page 157.

Table 30.1: Summary of Scottish Water's representations in relation to governance and incentives

Issue	Scottish Water's representations: relevant chapter	Minimum change required
Borrowing reserve	Changing regulatory framework and risk	The borrowing reserve must be consistent with the materiality threshold for interim reviews. A 10% threshold on revenue would require a reserve of £100 million to accommodate changes that require capital investment.
Governance	Changing regulatory framework and risk	The governance of access to the borrowing reserve should not unduly restrict governance of our business and day to day operations.
Outperformance and return on customer-retained earnings	Changing regulatory framework and risk	The proceeds of outperformance and the return on customer-retained earnings should be held in a liquid fund to manage cost shocks.
Notified items	Changing regulatory framework and risk	The final determination should provide a non-exclusive list of 'material change items' for which an interim determination could be sought.
Setting charges after an interim determination	Changing regulatory framework and risk	The final determination should explain how the Commission would set charges following an interim determination, specifically how it would determine the allowable borrowing.

Chapter 31:

Other stakeholders' representations

Introduction

In this chapter we summarise other stakeholders' representations on the governance and incentive framework that were proposed by the Commissioner in his draft determination.

In the draft determination, the Commissioner explained that he had adopted the RPI-X (or incentive-based) approach to regulation. He proposed the use of two mechanisms to take account of any unforeseen costs that were outside the control of management and had to be incurred by Scottish Water during the regulatory control period.

Of the 35 representations that we received on the draft determination, ten commented on the proposed incentive framework. These representations are summarised below.

Underperformance in the charges determination

The Commissioner noted that if Scottish Water failed to meet the level of performance set out in the determination of charges, it would be for Scottish Ministers to decide on an appropriate course of action. However, he noted that the risk of Scottish Water failing to perform at least in line with the determination was less than 9%.

The Water Customer Consultation Panels (WCCP) commented:

"The WCCP view is that, ostensibly, the overall balance of risk is tipped too much towards the customer. In England and Wales (E&W) risks are borne in large part by company shareholders. In Scotland this is not possible, but WCCP believe that given the uncertainties from disparate assessments of costs made by the WIC, as the economic regulator, and SW [Scottish Water], as the public service provider, the owner should carry more of the risks."

Interim determinations and logging up and down

In the draft determination, the Commissioner proposed to adopt two mechanisms that have been used by Ofwat in England and Wales to deal with changes that are outside the control of management.

The first was to introduce the interim determination mechanism during a regulatory control period. An interim determination would be triggered if there was a material change in the costs (outside the control of management) that are incurred by Scottish Water. The second mechanism, the logging up and down process, would be used to register more minor changes at the next Strategic Review of Charges.

Four respondents commented specifically on the proposed introduction of these mechanisms. The Scottish Trades Union Congress (STUC), UNISON Scotland and the Transport and General Workers Union Scotland (T&G Scotland) all commented¹:

"The DD [draft determination] appears to import the English 'Notified Items' approach that seeks to limit the list of items that can trigger an interim determination. Yet again this appears to introduce mechanisms outwith the Scottish model."

Water UK commented:

"Water UK notes that the WIC has introduced similar change mechanisms (IDoKs [interim determinations] and logging up) as used by Ofwat in England and Wales. This is a welcome and important recognition of the need for regulation to provide an appropriate framework for Scottish Water to manage risk."

However, it added the clarification that it would:

"... urge the WIC to reflect on whether the mechanisms are appropriate in their present format to Scottish Water's operating, legal and financial circumstances over the period of the charge caps."

¹ A significant proportion of the STUC's representation, UNISON Scotland's representation and T&G Scotland's representation were verbatim. All three representations are reproduced in Appendix 14.

The Commissioner explained that ‘notified items’ are items that might have an impact on a company’s turnover but that at the time of completing the review there may be uncertainty about their impact.

Glasgow and the Clyde Valley Structure Plan Joint Committee commented, in relation to the ‘Glasgow Strategic Development Plan’ that it:

“... hoped this is reflected as a ‘Notified Item’ in terms of [the] final determination.”

Three further respondents commented on possible instances where there might be uncertainty in this and future regulatory control periods. The Scottish Environment Protection Agency (SEPA) suggested that the interim determination and logging up and down mechanisms could be used to address new EU obligations:

“SEPA believes that we should make use of the “logging up/down” and interim determination processes rather than the substitution process for new designations. Logging up/down or interim determination should be able to deal with such new designation issues without putting the achievement of the Ministerial Objectives at risk. This should occur automatically provided that the trigger of the “legal changes” category identified in the draft determination covers new EU Directive designations and SEPA would welcome confirmation of this in the final determination.”

WCCP commented:

“A further list of factors “outside management control” could be added to those in WIC table 7.19 (Vol.1) that would contribute even more uncertainty to the outcome. Many of these are water industry related and a few examples are:

- *the outcome of the developer contribution and “reasonable cost” regulation;*
- *the full cost impact of competition and loss of non-domestic customers;*

- *costs associated with obligations and enforcement under the forthcoming statutory odour code for wastewater treatment;*
- *costs of future domestic billing and collection arrangements.”*

Water UK noted that the Water Framework Directive could require new and unforeseen investment in coming regulatory periods. Water UK questioned the appropriateness of using interim determinations in such circumstances:

“We are also engaging with Ofwat in consideration of whether existing change mechanisms would be appropriate in the case of there being insufficient clarity over investment requirements arising from the Water Framework Directive by the time of PR09 [price review 2009] determinations. We note that IDoKs were not designed for this purpose, but to deal with unexpected and infrequent changes of circumstances.”

The Commissioner explained that in the event of an interim determination, Scottish Water’s charge caps would be reconsidered. However, he noted that only those circumstances that have triggered the interim determination would be taken into account. An interim determination could result in charge caps increasing.

One respondent, the WCCP, commented:

“WIC refers to SW [Scottish Water] being fully protected from exogenous shocks and inflation through the interim determination process, implying that in these circumstances the ‘main financial risks’ are borne by customers.”

The WCCP went on to conclude:

“WCCP are anxious to ensure that the level of risk, financial and service related, is shared appropriately between various stakeholders, and that customers are more fully protected against cost increases outside the control of management by the owner.”

The Commissioner explained that where Scottish Water incurred costs that were outside its control, these costs may not reach the threshold for an interim determination. In his view, the Commission could only respond to these new costs through the logging up and down process at the end of the regulatory control period. The Commissioner therefore suggested that in the interim, Scottish Ministers should retain a reserve of £40 million from lending that they were prepared to make available to the industry to meet their objectives. This could be made available to Scottish Water to the value of the additional costs it has incurred.

Water UK commented:

“The WIC is proposing to make a funding provision of £40m to be held by the Scottish Executive, to cover the impact of unforeseen events outside management control that would not trigger an IDoK [interim determination]. This sum appears low to us by comparison with the size of the reserve established by Glas Cymru.”

Water UK went on to comment:

“The WIC suggests that the company will not be able to access the reserve without prior agreement by the WIC. The need for the regulator to intervene in what appears to be an issue for management and the owners of Scottish Water, appears puzzling.”

The Scottish Executive noted:

“The draft proposes that access to this additional lending should be available only where the Commission agreed that it was justified by the circumstances and where the cost to SW [Scottish Water] fell below the threshold at which the Commission would conduct a review of its determination, as provided for by section 29F of the 2002 Act.

The Executive acknowledges that there might be circumstances in which SW would have a legitimate requirement for additional borrowing. Consequently, were the Commission to recommend that additional lending was justified, the Executive would seek Parliamentary approval to increase its lending to SW in line with the recommendation.”

Outperformance of the regulatory contract

The Commissioner explained that the 2006-10 determination of charges should be seen as an agreement between customers and Scottish Water about the level of service that will be delivered during the regulatory control period.

In the draft determination, the Commissioner explained that there was scope for a determined management to outperform the proposed regulatory contract.

One respondent, Water UK, commented on the scope for outperformance:

“...on a large number of significant individual elements, the determination adopts assumptions that tend to be at the more challenging end of the range. In reaching your final determinations, we would ask you to review whether this achieves the right balance to be consistent with the objective of creating an incentive regime with a high probability of outperformance.”

Water UK went on to note:

“We fully support the WIC’s endeavours to challenge and incentivise Scottish Water to achieve further efficiencies. But would urge you to reflect upon whether the framework and process of the Strategic Review may have contributed to too much emphasis being placed on reducing allowed costs in order to contain the bill impacts of an ambitious investment programme.”

Another respondent, the WCCP, commented:

“In order to understand whether the WIC is striking the right balance of funding, it is necessary for customers to be able to weigh up the chance and cost of under-performance against the chance and benefit of out-performance. WCCP believe that SW [Scottish Water] customers are not in a position to make this judgement. There has been no appropriate consultation with customers on what they feel is an acceptable level of risk for them to take on funding, investment or charges.”

The Scottish Executive recognised that:

“Out-performance is likely to happen only if SW’s [Scottish Water’s] employees have incentives to achieve it. And if out-performance does happen, a mechanism will need to be in place to manage the cash surplus that it will generate.”

The Commissioner explained that in the event of outperformance, financial surpluses in excess of those projected in the draft determination would be generated. Any surplus could be used in a number of ways. The Commissioner explained that surpluses could be re-invested in the industry or paid back to customers. He noted that his preferred approach would be to build a financial buffer with the proceeds of outperformance. He suggested that this could be held in index-linked government gilts and used to help safeguard customers against possible exogenous shocks.

The Commissioner noted that it was important that only the proceeds of genuine outperformance are allocated to the reserve or paid back to customers. He suggested that the Commission, in consultation with SEPA and the DWQR, should verify that Scottish Water had complied with the regulatory contract.

The Commissioner recognised that the way in which the proceeds of outperformance are used is an issue for the Scottish Executive.

Water UK commented that it did not believe that Scottish Water’s regulators should decide how any proceeds from outperformance are spent. It stated:

“Aside from the question as to whether it is for the regulator to determine the size of such a reserve, we consider that it is more appropriate to leave it to Scottish Water’s management and its owners to determine the appropriate sharing of any outperformance gains between customers and the building up of a firm’s cash buffer (seen as critical in the absence of shareholders).”

The STUC, UNISON Scotland and T&G Scotland did not believe that the size of any reserve that is established from the proceeds of outperformance is a matter for the economic regulator. All three organisations suggested:

“The WIC also appears to be proposing an involvement in the management of reserves, an issue that is properly a matter for Scottish Ministers and Scottish Water.”

The WCCP suggested that the way in which the proceeds of outperformance are used should be a matter for customers to decide. It commented:

“If the out-performance results are indeed achieved, it would be crucial that such gains are spent directly on whatever customers wished them to be spent on, and they would need to be asked about this.”

Another respondent, SEPA, suggested that the proceeds of outperformance could be re-invested in the industry, and used to reduce the risk of future underperformance. It stated:

“SEPA considers that it is vital that out-performance should be used to fund priority projects, thereby contributing to a reduced infraction risk. The re-investment of out-performance over a business planning period would promote the effective use of resources by ensuring that it is in the interests of both the regulators and Scottish Water to maximise effective spend.”

Two respondents suggested that the proceeds of outperformance could be returned to customers. The Scottish Council of Voluntary Organisations (SCVO) suggested the proceeds could be used to subsidise specific customer groups:

“SCVO also believes that some of these gains for the public purse should be deployed to ensuring that low income households and charitable and voluntary organisations bear a more realistic part of the total community burden of water charges.”

Glasgow City Council noted that a proportion of the proceeds of outperformance should be returned to customers. It stated:

“The WIC suggests that any such bonuses should only be paid once performance has exceeded the minimum acceptable level. The Director of Finance, in response has also suggested that consideration should be given to providing rebates to customers before, or in tandem with,

bonuses to senior Scottish Water management, as this would mitigate, in some small way, the impact of historical increases endured by customers in recent years.”

The Scottish Executive supported the Commissioner’s preferred approach. The Executive commented:

“It notes the arguments at Chapter 6, Volume 4 of the draft in favour of establishing a reserve against operational shocks to SW [Scottish Water] and of that reserve being held by SW as a safe liquid asset. It accepts these arguments and welcomes the possibility of being able to avoid unplanned increases in customer charges that might be needed as a result of any external shocks to the business and of establishing a transparent measure of SW’s success in out-performing the charges determination.

In view of these considerations, the Executive agrees that any financial surpluses generated by out-performance should be held by SW in the form of index-linked Government securities (gilts). The Executive will use the powers at section 44 of the 2002 Act to direct SW to use surpluses to acquire gilts from time to time. It will do so only after the Commission has verified that the surplus can be attributed to out-performance by SW, and not, for example to any slippage in delivering the capital investment programme required by the Objectives Direction.”

The Commissioner also noted that it may be effective to link the bonuses of Scottish Water’s employees to the size of any outperformance that is delivered. However, he emphasised that this was an issue for Scottish Water and its owners to determine.

One respondent, the Federation of Small Businesses commented:

“...we would like to make specific comments about the bonus scheme used by Scottish Water, as this is an issue that has aggrieved many business customers. We note that the WICS has no remit to enforce a specific bonus scheme on Scottish Water but we are keen to ensure that no bonuses are given unless the targets set in the determination are exceeded. We would also like to

see the bonus scheme published in advance which, we understand, happens in other publicly-owned businesses.”

The Scottish Executive noted that it:

“...acknowledges that it is its responsibility to ensure that employee incentive plans encourage Scottish Water’s managers towards out-performance. To this end it will require SW to develop a plan for paying bonuses to its executive directors only where SW has exceeded the targets set for it in the determination. An important purpose of the plan will be to demonstrate to customers on a clear and objective basis the benefits to them of out-performance.”

The Executive went on to note:

“It will be for SW to submit to the Executive a fully developed incentive plan. The Executive will approve a plan only where...SW’s performance against these targets will be verified publicly by the Commission, SEPA, or the DWQR [Drinking Water Quality Regulator] as necessary...All bonuses under the plan will be funded from a pre-set proportion of whatever savings are generated by SW out-performing its agreed targets.”

Summary

Most respondents recognised that Scottish Water could incur costs in the coming regulatory control period which are outside its control. The majority of respondents accepted that a mechanism would be required to take account of these costs. Some supported the use of interim determinations and logging up and down, although four respondents questioned their applicability to Scotland.

Respondents recognised that the proceeds of outperformance could be employed in a number of ways. There was a wide range of views among stakeholders. The Scottish Executive supported the Commissioner’s preferred option of the purchase of government gilts. Our response to these representations are detailed in the next chapter.

Chapter 32:

Our conclusions

Introduction

In this chapter, we first discuss the Scottish Executive's representations on the draft determination concerning governance and incentives. We then review the interim determinations process and discuss the public borrowing that will be held in reserve. Finally, we outline our intention to implement a rolling incentive mechanism, similar to that which Ofwat uses to provide incentives for the companies south of the border.

The governance and incentive framework

We welcome the Scottish Executive's representations on the draft determination.

- We are pleased that the Executive recognises the benefits of an incentive-based approach to regulation and the importance of maintaining a hard budgetary constraint.
- We welcome the commitment from the Executive that employee incentives should be linked to the levels of performance that are required by the regulatory contract.
- We agree that it is in customers' interests that, before bonuses are paid, Scottish Water must at least meet the ministerial objectives within the resources allowed for by the final determination.
- We also consider that the Scottish Executive's approval of the creation of a financial buffer is important.

We noted the representations from Scottish Water on the size of the borrowing reserve. In the light of these representations we have decided to increase the £40 million borrowing reserve proposed by the Commissioner in his draft determination to £50 million. We believe that is likely to be more than sufficient to cover unexpected costs outside management control that may lead to an interim determination.

We recognise that there is a possibility that a larger buffer may be required before an interim determination would normally be triggered. This would relate to an unexpected enhancement investment project required to meet ministerial objectives that could not be accommodated either through project substitution, or,

with ministerial agreement, use of outperformance of the allowed for capital expenditure.

Interim determinations

We have reviewed the representations from stakeholders on interim determinations. We considered in particular the points raised by Scottish Water and Water UK.

We believe that the draft determination set out a clear process for handling interim determinations. We agree with Scottish Water's view that it may be appropriate to use the term 'material change item' to cover events that might trigger an interim determination.

We still believe that the threshold for an interim determination should be calculated in the same way that it is calculated in England and Wales. In this regard, it is important to emphasise that the test is the net present value of the material change item. We propose to use Scottish Water's real discount rate on the identified costs or revenue impact in real terms. It is important to note that such costs or revenue impacts need to be outside the control of management unless specifically noted in this final determination.

We recognise that if an interim determination found that an increase in enhancement investment is required (and, consequently, a need for further borrowing from the Scottish Executive beyond that which was currently agreed), there would need to be a discussion with the Scottish Executive to determine whether it wished to redeploy resources within the programme or to make further lending available. Interim determinations caused by a need for increased funding for operating costs or capital maintenance costs would not have a material impact on borrowing. They would affect customers' charges directly.

We propose to follow the process that was set out in Volume 7 of the draft determination, amended to reflect the changes described above.

Mechanisms for incentivising outperformance – rolling incentive mechanism

We believe that the introduction of a more robust regulatory framework, which establishes a transparent tight budgetary constraint, will ensure that customers

can look forward to better value for money. The success of this regulatory framework requires there to be appropriate incentives for both employees and for the organisation as a whole.

The Scottish Executive's representations make it clear that there will be an appropriate framework for employee incentives that is fully aligned with the outcome of this final determination.

We consider that the creation of a financial buffer, held in index-linked gilts, should reassure Scottish Water that it will benefit from its success in outperforming the regulatory contract. The size of the buffer is a transparent way of measuring management performance, and therefore the mechanism is likely to have a significant incentive effect. Outperformance will be added to the gilts buffer. This will in the medium term act as an important shock-absorber in the event that there is an operational shock. This is in customers' interests, as the effects of such a shock will not have to be passed on to customers' bills in the short term.

Given that the Scottish Executive has agreed to the creation of a financial buffer, and that it has made it clear that it intends to respect the hard budgetary constraint that the regulator sets, we are minded to introduce a rolling incentive mechanism. We consider that this could improve the rate at which efficiencies are made.

In Chapter 29 we set out how the rolling incentive mechanism used by Ofwat in England and Wales works. We explained how rolling incentive mechanisms are applied to both operating expenditure and capital expenditure. We also explained how Ofwat proposed in June 2003 to enhance its rolling incentive scheme by using multipliers.

We consider that there would be a benefit in introducing a rolling incentive mechanism. This would allow the financial buffer to be developed more quickly.

We consider that the water industry in Scotland still has some way to go to match the efficiency of its counterparts in England and Wales. The incentives on Scottish Water from regulatory targets based on the RPI-X mechanism should therefore be relatively strong. We do not, therefore, propose to apply multipliers to any outperformance at this stage.

The introduction of rolling incentives will not have an impact on prices during this regulatory control period, but could have an impact in the regulatory control period that begins in 2010. We will consult separately on our detailed proposals during the next regulatory control period.

Summary

We have outlined our conclusions following detailed consideration of the Commissioner's proposals in his draft determination and the representations from stakeholders.

We concluded that Ofwat's interim determination process is fit for purpose in Scotland and that there is no compelling reason to change the applicable thresholds.

We welcome the Scottish Executive's undertaking to hold debt in reserve in case it is needed to bridge the gap between costs outside management control being incurred and an interim determination being triggered. We consider that the £40 million proposed by the Commissioner would likely have been sufficient, however, in response to Scottish Water's representation we decided to increase the allowed reserve to £50 million. This reserve should be sufficient to cover the costs or revenue impacts that are likely to be faced before the net present value threshold of the change is breached (ie before an interim determination becomes allowable).

We also welcome the Scottish Executive's agreement to create a financial buffer with the proceeds of outperformance. This will reduce the risk of customers' bills having to increase immediately in the case of an operational shock. This will significantly contribute to the Ministers' objective of smoothing the profile of charges where possible.

The creation of a financial buffer will also ensure that we maintain a hard budgetary constraint. We consider this to be important. The creation of such a buffer will allow us to introduce a rolling incentive mechanism. We will consult separately on the introduction of such an incentive during the next regulatory control period.

Section 7:

Setting charge caps for 2006-10

Chapter 33: Introduction

In this section, we set out our views on the revenue required by Scottish Water for the 2006-10 regulatory control period. We also set out the impact of this level of revenue on customers' charges for the current period, as well as the prospects for future charges.

It is our statutory duty to promote the interests of current and prospective customers of Scottish Water's core business. One of the ways in which we do this is by ensuring that Scottish Water has sufficient funding to carry out its core functions as a water and sewerage service undertaker in an efficient manner. Scottish Water's funding comes from the revenue it raises through charges to customers and through borrowing from the Scottish Executive.

The revenue that is raised from customers is determined by the charge limits that we set. We use a financial model to inform our calculation of the charge limits. In preparing this final determination, the financial model that we used was the same model that the Water Industry Commissioner used to set his charge caps in the draft determination. We also adopted five out of six ratios that Ofwat used to assess the financial sustainability of the water industry south of the border at its 2004 price review.

We use tariff baskets in order to be able to set charge caps for different groups of customers. Our ten tariff baskets cover Scottish Water's core services. These tariff baskets were described in detail in the Water Industry Commissioner's draft determination¹.

In setting the charge caps, we have taken full account of the borrowing that the Scottish Ministers have been prepared to make available to Scottish Water for this regulatory control period. At the same time, we have set charge caps such that if Scottish Water were to perform in line with the assumptions in this final determination, it would comply with all of the cash-based ratios that Ofwat used. The use of these financial ratios ensures that we have struck an appropriate balance between current and future customers.

Structure of this section

In this section, we draw together our conclusions on the customer revenue base, the level of operating costs and capital investment that should be allowed for, the level of customer service that Scottish Water is required to provide and financing. It comprises five chapters:

- Chapter 33 is this introduction.
- Chapter 34 summarises the conclusions of the Water Industry Commissioner for Scotland in his draft determination on charge caps.
- Chapter 35 outlines the charge caps determined by the new Commission.
- Chapter 36 outlines the impact of these charge caps on customers for the regulatory control period 2006-10.
- Chapter 37 summarises the prospects for charges in 2010-14.

¹ Water Industry Commissioner for Scotland, 'The Strategic Review of Charges 2006-10: The draft determination' Volume 7, Chapter 10, page 85.

Chapter 34:

Conclusions of the draft determination

Introduction

In this chapter we outline how the Water Industry Commissioner calculated the revenue limits that underpin the charge caps in the tariff baskets. The chapter sets out the Commissioner's view of the minimum level of revenue that Scottish Water would require in 2009-10 in order to be financially sustainable. The Commissioner adopted five of the financial ratios used by Ofwat, in its 2004 price determinations, in his assessment of financial sustainability. These were discussed in Chapter 22.

We then set out the levels of investment, operating cost, depreciation and PPP costs that were allowed for by the Commissioner. The chapter also explains the Commissioner's approach to calculating tax. This information allowed him to calculate the required regulatory capital value (RCV) in 2009-10 and, consequently, the initial RCV.

In line with the Ministerial Guidance on the principles of charging, the Commissioner phased the increase in revenue required.

The investment programme

The Commissioner allowed for the investment programme that is shown in Table 34.1. In the Commissioner's view, this programme was sufficient to allow both the 'essential' and 'desirable' investment objectives of the Scottish Ministers to be delivered.

Table 34.1: Required investment programme (outturn prices)

Investment category	2006-07	2007-08	2008-09	2009-10
Overhang from Quality and Standards II	£243.7m	£30.9m	-	-
Infrastructure renewals expenditure	£88.6m	£91.2m	£94.0m	£96.8m
Other investment (including additional retail investment)	£202.1m	£470.9m	£539.4m	£592.7m
Total investment	£534.3m	£593.0m	£633.3m	£689.5m

Depreciation and infrastructure renewals charges

The depreciation charge can be divided into the depreciation of existing assets (represented by Scottish Water's net Modern Equivalent Asset Value) and depreciation of new assets. The infrastructure renewals charge was set at the same level as actual spending on infrastructure renewals as shown in Table 34.1. The depreciation and infrastructure renewals charges that were allowed for by the Commissioner are shown in Table 34.2.

Table 34.2: Depreciation and infrastructure renewals charges (current cost basis) (outturn prices)

Depreciation category	2006-07	2007-08	2008-09	2009-10
Current cost depreciation of existing assets	£178.8m	£184.2m	£182.3m	£180.1m
Current cost depreciation of new assets (after 1 April 2006)	£8.3m	£27.0m	£48.4m	£72.2m
Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
Total depreciation and infrastructure charges	£275.7m	£302.4m	£324.7m	£349.1m

Total allowed for operating costs

In Chapter 10 we summarised the maximum level of operating costs that were allowed for by the Commissioner. The Commissioner noted that, in incurring this level of operating costs, Scottish Water should not just meet the Ministers' objectives, but should also provide an improving level of service to customers. Total operating costs include the following:

- base operating costs, including any adjustments;
- his estimate of the scope for efficiency;
- his estimate of Consumer Price Inflation; and
- new operating costs.

Total allowed for operating costs are set out in Table 34.3.

Table 34.3: Total allowed for operating costs (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Total water operating costs	£150.5m	£153.8m	£157.5m	£163.6m
Total waste water operating costs	£117.5m	£121.1m	£124.3m	£128.5m
Additional retail costs	£4.1m	£2.6m	£2.1m	£1.6m
Total allowed for operating costs	£272.1m	£277.6m	£283.9m	£293.8m

Allowed for costs of Public Private Partnerships

The Commissioner noted that it was likely that some additional investment would be necessary at the sites that are managed by the PPP contractors. He considered that this investment would have to be delivered by these contractors and that contract amendments were likely to be required. In Table 34.4, we set out the original costs that the Commissioner expected to be incurred in relation to the contracts signed by the three former water authorities. The table also outlines the Commissioner's view of the new additional costs that may be incurred as a result of the required extra investment.

Table 34.4: Total allowed for costs of PPPs (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Original contract costs	£121.4m	£123.8m	£126.3m	£128.8m
Additional costs resulting from additional investment	£1.0m	£1.0m	£3.2m	£7.0m
Total allowed for PPP costs	£122.4m	£124.8m	£129.5m	£135.8m

Asset disposals and cash proceeds

The Commissioner did not expect asset disposals to be very material. His estimates took account of the level of asset sales made by Scottish Water in its first three years of operation. The Commissioner also took account of experience from south of the border.

His assumptions are outlined in Table 34.5.

Table 34.5: Asset disposals and cash proceeds (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Asset disposals (historic cost net book value)	£1.0m	£1.0m	£1.0m	£1.0m
Cash proceeds from asset disposals	£1.0m	£1.0m	£1.0m	£1.0m

Other inputs to the financial model

The Commissioner set an allowed rate of return of 0.72% real post-tax. He also allowed the extra costs incurred by Scottish Water for all of its embedded debt that had a coupon greater than 4.6% nominal (the equivalent of a 0.72% real post-tax rate). He set the interest rate on new or refinanced debt in line with the rate of return on debt that was included in the cost of capital calculation. The Commissioner used a debt to RCV ratio of 65% in applying the hybrid weighted average cost of capital (WACC).

The model also uses two separate inflation rates. The Commissioner used the consumer price index (CPI) to inflate the costs of all operating and PPP costs. He used the construction output price index (COPI) to inflate capital expenditure. The Commissioner set charges relative to RPI in order substantially to remove the financing risk from Scottish Water.

The Commissioner also took account of the unsubstantiated claim for efficiency made by the former East of Scotland Water Authority. In line with his agreement with the Board of Scottish Water, the Commissioner subtracted £16.04 million a year in outturn prices from the allowed for level of capital expenditure.

The Commissioner's approach to calculating tax

The Commissioner took a conservative approach in his calculation of tax. That is to say, he assumed the highest level of corporation tax that Scottish Water was likely to have to pay. His approach was based on advice that he received from Ernst & Young LLP and his understanding of the potential introduction of international accounting standards.

The main difference related to the way in which infrastructure renewals expenditure was treated. The Commissioner noted that Scottish Water appeared to claim its infrastructure renewals charge as an expense for tax purposes. His understanding was that there was a significant likelihood that this practice would not continue to satisfy Her Majesty's Revenue and Customs. He believed that future expenditure on infrastructure renewals would have to be capitalised and depreciated over the life of the assets. This would increase the taxable surplus generated by Scottish Water and would lead to an increase in the initial tax payable. Over the life of these assets there would be no increase in the tax that would be payable, but there would be a difference in timing when the tax became payable.

The Commissioner explained that if he had overestimated the tax that would be payable, then, depending on the materiality of the difference, an interim determination could become appropriate. Such an interim determination would lower charges to customers.

Calculating revenue

The Commissioner used the financial model to identify the cash return on the RCV required by Scottish Water in 2009-10. The rate of return and the embedded debt allowance were both fixed, so it was possible to determine the RCV that Scottish Water would require in 2009-10. The constraint was that Scottish Water should comply in 2009-10 with all of the targeted cash-based financial ratios. The Commissioner made it clear that, in practice, Scottish Water would only comply with all of these financial ratios if it were to perform at the level assumed in the draft determination.

The financial model calculated the value of the initial and the 2009-10 RCV.

Table 34.6 sets out the RCV in each year of this regulatory control period.

Table 34.6: Calculation of the RCV in each year of this regulatory control period (outturn prices)

		2006-07	2007-08	2008-09	2009-10
	Opening RCV	£3,519.8m	£3,847.8m	£4,214.3m	£4,606.1m
plus	Inflation adjustment	£70.4m	£77.0m	£84.3m	£92.1m
plus	New investment	£534.3m	£593.0m	£633.3m	£689.5m
less	Depreciation	£187.2m	£211.2m	£230.7m	£252.3m
less	Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
less	Disposal of assets	£1.0m	£1.1m	£1.1m	£1.1m
equals	Closing RCV	£3,847.8m	£4,214.3m	£4,606.1m	£5,037.5m
	Year average	£3,683.8m	£4,031.0m	£4,410.2m	£4,821.8m

The tax that was allowed for is shown in Table 34.7.

Table 34.7: Corporation tax allowed for 2006-10 (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Corporation tax payable	£0.0m	£15.5m	£26.8m	£14.8m

The Commissioner allowed Scottish Water the revenue caps set out in Table 34.8 for each year of the regulatory control period. This table also shows the annual increase in revenue in both nominal and real terms. The Commissioner estimated real increases using an assumed 2.5% increase in the retail price index (RPI).

Table 34.8: Revenue caps 2006-10 (outturn prices)

	2005-06 ¹	2006-07	2007-08	2008-09	2009-10
Operating costs	n/a	£272.1m	£277.6m	£283.9m	£293.8m
PPP charge	n/a	£122.4m	£124.8m	£129.5m	£135.8m
Current cost depreciation	n/a	£187.2m	£211.2m	£230.7m	£252.3m
Infrastructure renewals charge	n/a	£88.6m	£91.2m	£94.0m	£96.8m
Cash return on the RCV	n/a	£148.9m	£163.6m	£178.9m	£195.7m
Embedded debt allowance	n/a	£33.8m	£32.3m	£30.7m	£29.1m
Tax	n/a	£0.0m	£15.5m	£26.8m	£14.8m
Calculated revenue	n/a	£852.9m	£916.2m	£974.5m	£1,018.2m
Financeability adjustment	n/a	£129.7m	£89.3m	£34.7m	£0.0m
Total revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Year-on-year increase (nominal)	-	1.82%	2.33%	0.36%	0.90%
Year-on-year increase (real)	-	-0.68%	-0.17%	-2.14%	-1.60%

Financial performance

The value of each of the ratios that the Commissioner targeted is shown in Table 34.9.

Table 34.9: Financial performance 2006-10

Financial ratio	Targeted value	2006-07	2007-08	2008-09	2009-10
Cash interest cover	Around 3 times	3.7	3.9	3.6	3.5
Adjusted cash interest cover	Around 1.6 times	2.5	2.6	2.2	2.0
Funds from operations: debt	Greater than 13%	15.90%	16.30%	14.10%	13.00%
Retained cash flow: debt	Greater than 7%	15.90%	16.30%	14.10%	13.00%
Gearing (debt: RCV)	Less than 65%	67.00%	64.60%	63.90%	63.80%

Table 34.9 shows that Scottish Water would at least comply with the targeted value for each ratio (with the exception of 'debt to RCV') in each year. Scottish Water's overall financial strength, as measured by the debt to RCV ratio, would improve modestly over the regulatory control period. The Commissioner believed that this financial performance was consistent with the Guidance he received from the Scottish Ministers.

Public expenditure

The Commissioner's proposed revenue caps required Scottish Water to take on considerable new debt during the next four years. This net new debt counts as public expenditure.

In the Ministers' February statement, Scottish Water was allowed £182 million of public expenditure a year. Scottish Ministers also allowed Scottish Water to carry forward any unused public expenditure from the 2002-06 regulatory control period.

The use of public expenditure is summarised in Table 34.10.

¹ For 2005-06, revenue was not assumed with reference to an RCV. We therefore do not break it into individual components.

Table 34.10: Public expenditure 2006-10 (outturn prices)

		2006-07	2007-08	2008-09	2009-10
2002-06 carry-over	£256.0m				
Available public expenditure at start of year (including carry-over)		£438.0m	£495.4m	£529.4m	£493.2m
Public expenditure used		£124.6m	£148.0m	£218.2m	£270.6m
Unused public expenditure at year end		£313.4m	£347.4m	£311.2m	£222.6m

The Commissioner explained that it was not possible to increase the use of public expenditure and to comply fully with all of the cash-based financial ratios in each year.

The Commissioner went on to explain that he had considered what the impact on charges would have been in both the current and future regulatory control periods

if he had allowed Scottish Water to comply with all of the cash-based ratios except 'funds from operations divided by debt'. The rationale for allowing this ratio to be breached would be that Scottish Water is funded entirely by customer charges and debt, and there is no indication that the Scottish Executive will seek to require Scottish Water to pay a dividend on any retained earnings. From this standpoint, complying with this ratio could reasonably be regarded as challenging.

The Commissioner's analysis showed that a further small reduction in real terms in the level of charges faced by customers in this regulatory control period would have been possible if he had not required Scottish Water to comply with all of the cash-based financial ratios. However, this would have made increases above the rate of inflation more likely in the next period. It would also have reduced the affordability of future investment programmes.

Table 34.11 summarises the Commissioner's analysis. The analysis assumed that the required capital programme in 2010-14 was set at the same level of £2,100 million in 2003-04 prices.

Table 34.11: Effect of not complying with the funds from operations/debt ratio

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Revenue required (full compliance) ²	£984m	£1,006m	£1,009m	£1,018m	£1,063m	£1,110m	£1,160m	£1,211m
	1.82%	2.33%	0.36%	0.90%	4.43%	4.43%	4.43%	4.43%
Revenue required (not including funds from operations) ³	£953m	£941m	£929m	£918m	£1,065m	£1,128m	£1,230m	£1,365m
	-1.25%	-1.25%	-1.25%	-1.25%	16.00%	6.00%	9.00%	11.00%
Public expenditure (full compliance) ⁴	£125m	£148m	£218m	£271m	£193m	£184m	£222m	£279m
Public expenditure (not including funds from operations)	£155m	£195m	£271m	£362m	£181m	£179m	£181m	£182m

² Full compliance in the last year of each regulatory period (2010 and 2014)

³ Public expenditure limit forces prices upwards

⁴ Public expenditure that is not used in the 2006-10 regulatory control period is carried forward to 2010-14

The Commissioner's view was that the revenue scenario outlined in Table 34.11 would have been inconsistent with the Ministerial Guidance. He also considered that increasing borrowing further in this regulatory control period would not have been in the interests of customers. This may have resulted in a marginally better charge profile today, but would have led to higher charges and larger increases in charges in the next regulatory control period.

The Commissioner did, however, advise that £40 million of the unused public expenditure should be held in reserve by the Scottish Executive Environment and Rural Affairs Department. This would allow Scottish Water to access sufficient funding in any period before the threshold for an interim determination is breached. The Commissioner's analysis suggested that £40 million may be required before it would be possible to trigger an interim determination. His view was that this lending should only be made available to Scottish Water with the agreement of the new Water Industry Commission and should only cover the costs of events that are outside the control of management.

The Commissioner also noted that it was for the Scottish Executive to decide how it would deal with underperformance against the final determination. The Commissioner's view was that customers should not be asked to pay twice for the same output.

Revenue per connected property

The estimated number of connected properties is shown in Table 34.12.

Table 34.12: Estimated number of connected (billed) properties 2005-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Number of connected (billed) water properties	2,323,117	2,340,295	2,357,470	2,374,647	2,391,824
Number of connected (billed) waste water properties	2,218,159	2,235,332	2,252,515	2,269,692	2,286,867
Average number of connected (billed) properties	2,270,638	2,287,814	2,304,993	2,322,170	2,339,346

The growth in the number of connected properties primarily reflected an increase in the number of households connected, but also some growth in the number of business properties connected. This increase in the number of business properties connected results from significant investment in removing development constraints.

The level of revenue relative to the number of connected properties is outlined in Table 34.13.

Table 34.13: Estimated revenue per connected property 2005-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Revenue per connected property (nominal)	£425	£430	£436	£435	£435
Revenue per average connected property (2003-04 prices)	£402	£396	£393	£382	£373

The Commissioner compared the revenue allowed to Scottish Water on a per connected property basis with that which is allowed to the water and sewerage companies south of the border. This is shown in Table 34.14.

Table 34.14: Estimated revenue per connected properties 2005-10 for all water and sewerage companies in Great Britain

Revenue per connected property (2003-04 prices)	Average revenue 2005-10 ⁵ , ⁶	Average properties ⁷	Average revenue per property
Scottish Water	£897m	2.30m	£389
Anglian	£812m	2.21m	£368
Welsh	£542m	1.30m	£417
Northumbrian	£514m	1.49m	£345
Severn Trent	£1,127m	3.50m	£322
South West	£361m	0.70m	£516
Southern	£550m	1.42m	£387
Thames	£1,333m	4.42m	£302
United Utilities	£1,238m	2.97m	£417
Wessex	£337m	0.82m	£411
Yorkshire	£700m	2.06m	£340

The average revenue raised by Scottish Water on a per connected property basis is £389. The Commissioner explained that, in this comparison, Scottish Water benefited from its lower cost of capital relative to the equity-financed companies south of the border. The cost to customers in Scotland if the cost of capital available to Scottish Water were the same as the rate of return allowed by Ofwat in its 2004 final price determinations would have been an additional £130 million (in average 2003-04 prices). This would have been equivalent to an extra £56.30 (average 2003-04 prices) per connected property. This would have given Scottish Water, at £446, the second highest revenue per connected property in Great Britain.

Setting retail charge limits

In previous sections we set out how the Water Industry Commissioner set revenue caps for each year of the regulatory control period. The Commissioner used tariff baskets to convert his assessment of the required level of revenue into retail charge limits. This chapter now continues with an explanation of the retail charge limits that the Commissioner applied to each of the ten tariff basket that he established. These retail charge limits determine the average increase in tariff that he proposed to allow within a basket.

⁵ Ofwat did not disaggregate revenue or the numbers of properties on a year-on-year basis. Instead it used the entire 2005-10 period. As such, calculations for Scottish Water also include the 2005-06 revenue and properties for comparison purposes.

⁶ Ofwat's final determination used a 2002-03 price base, therefore revenue figures were included by financial year average RPI to obtain 2003-04 prices.

⁷ Simple average between water and waste water billed connections.

The Commissioner set retail charge limits for primary services. Although he limited the revenue that could be collected from secondary services, he did not determine individual retail charges for secondary services. He deducted the expected revenue from secondary services each year from the total allowed revenue to calculate the level of revenue that was required from customers of primary services. This calculation is shown in Table 34.15.

Table 34.15: Calculation of primary revenue (outturn prices)

	2003-04 actual revenue (as per Annual Return 2003-04)	Rebalancing, based on 2003-04 (from Ministerial Guidance)	2003-04 revenue after rebalancing
Household customers	£580.3m	+£44m	£624.3m
Non-household customers	£348.6m	-£44m	£304.6m
Total	£928.9m		£928.9m
Percentage household	62.5%		67.2%
Percentage non-household	37.5%		32.8%

In its second draft business plan, Scottish Water forecast that secondary revenue would increase in line with inflation each year. The Commissioner accepted this profile for secondary revenues.

The Commissioner calculated that the retail charge limits he had set would, in line with the Ministerial Guidance, remove £44 million of cross-subsidy to household customers from non-household customers by the end of the 2006-10 regulatory control period. The Commissioner used the household and non-household shares of primary revenue in 2003-04 to calculate the required shares in 2009-10. Table 34.16 sets out his calculation.

Table 34.16: Calculation of revenue shares from household and non-household customers (2003-04 prices) – primary revenue

	2006-07	2007-08	2008-09	2009-10
Total allowed revenue	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Secondary revenue	£13.9m	£14.2m	£14.6m	£15.0m
Primary revenue	£968.8m	£991.3m	£994.6m	£1,003.3m

The Commissioner set retail charge limits such that forecast revenue in 2010 was:

- £673.8 million from household customers (ie 67.2% of £1003.3 million); and
- £329.4 million from non-household customers (32.8% of £1003.3 million).

The Commissioner explained that his approach to setting individual charge limits was an iterative process. He set charges in line with the Ministerial Guidance. Specifically, he set charges such that:

- total forecast revenue equalled calculated allowed revenue;
- customers would not see rises of above inflation in any one year; and
- the £44 million of cross-subsidy would be unwound by the end of the regulatory control period.

The Commissioner first forecast annual revenue without any changes in charges. This is the revenue that arises from any underlying changes in the customer base. In this calculation, the Commissioner used the customer numbers that were set out in Chapter 4. The Commissioner explained that if forecast revenue were greater than the allowed level of revenue, there would have to be a fall in charges. The converse was also true.

The Commissioner forecast revenue for each year using 2005-06 tariffs. This is summarised in Table 34.17. He divided his forecast into household and non-household customers to show the percentage from each customer group.

Table 34.17: Revenue projections with 2005-06 tariffs and comparison with allowed revenue

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage in 2009-10
Forecast domestic	£628.8m	£629.5m	£635.5m	£641.6m	£647.7m	65.8%
Forecast non-domestic	£322.7m	£326.7m	£330.1m	£333.9m	£336.3m	34.2%
Forecast primary	£951.5m	£956.2m	£965.6m	£975.5m	£984.0m	100%
Forecast secondary ⁸	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m	
Forecast core revenue	£965.1m	£970.1m	£979.9m	£990.1m	£999.0m	
Allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	

The Commissioner concluded that if forecast charges did not change, forecast revenue would be below the allowed level of revenue in each year. The Commissioner also noted that the analysis showed that the percentage of revenue that was projected to come from household customers by 2009-10 was 65.8%. This would not have unwound the £44 million cross-subsidy. He concluded that charge increases for household customers would have to be higher than those for non-household customers.

The results of the Commissioner's tariff basket models are set out in Table 34.18. These models use the baseline customer information set out in Chapter 4. The table summarises the Commissioner's views on the nominal charge increase in each tariff basket that is required to comply with the ministerial guidance on the principles of charging.

⁸ Secondary revenue was assumed to increase at 2.5%(RPI) each year.

Table 34.18: Required nominal charge increase for each tariff basket

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	2.0%	2.0%	0.0%	0.0%
Household unmeasured waste water	2.0%	2.0%	0.0%	0.0%
Non-household unmeasured water	0.0%	0.0%	-2.1%	0.0%
Non-household unmeasured waste water	0.0%	0.0%	-2.1%	0.0%
Measured water (with 25mm connection or greater)	0.0%	0.0%	-2.1%	0.0%
Measured waste water (with 25mm connection or greater)	0.0%	0.0%	-2.1%	0.0%
Surface water drainage (excluding unmeasured domestic)	0.0%	0.0%	-2.1%	0.0%
Trade effluent	0.0%	0.0%	-2.1%	0.01%
Standard metered water connection (20mm)	0.0%	0.0%	-2.1%	0.0%
Standard metered waste water connection (20mm)	0.0%	0.0%	-2.1%	0.0%
Overall weighted average price increase	1.3%	1.3%	-0.7%	0.0%

The Commissioner noted that no household (except a second home owner or a high-banded household that had benefitted from the Scottish Executive's Transitional Relief Scheme) would face an increase in their water bill in real terms in any year of the regulatory control period. He also commented that all non-household customers who pay with reference to the charges scheme would see a reduction in their bills in nominal terms over the regulatory control period.

The charge limits in Table 34.18 result in the revenue breakdown as shown in Table 34.19.

Table 34.19: Revenue breakdown implied by our charge limits

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage in 2009-10
Forecast domestic	£628.8m	£642.0m	£661.2m	£667.5m	£673.8m	67.2%
Forecast non-domestic	£322.7m	£326.7m	£330.1m	£327.1m	£329.4m	32.8%
Forecast primary	£951.5m	£968.8m	£991.3m	£994.6m	£1,003.3m	100%
Forecast secondary	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m	
Forecast core revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	
Allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	

The Commissioner set a cap on real charge increases. He used RPI as the inflation index for charge setting. This is the same index that Ofwat uses to set charge limits for the water and sewerage companies in England and Wales. Scottish Water therefore has the same protection against financing inflation risk as the water and sewerage companies in England and Wales.

The Commissioner allowed Scottish Water to increase charges each year by the increase in RPI, plus a 'K' factor. The Commissioner's proposed K factors for each tariff basket, against which Scottish Water would be monitored, are shown in Table 34.20.

Table 34.20: The K factor for each tariff basket

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-2.5%	-2.5%
Household unmeasured waste water	-0.5%	-0.5%	-2.5%	-2.5%
Non-household unmeasured water	-2.5%	-2.5%	-4.6%	-2.5%
Non-household unmeasured waste water	-2.5%	-2.5%	-4.6%	-2.5%
Measured water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Measured waste water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Surface water drainage (excluding unmeasured domestic)	-2.5%	-2.5%	-4.6%	-2.5%
Trade effluent	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered waste water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Overall weighted average price increase	-1.2%	-1.2%	-3.2%	-2.5%

Charge limits for Scottish Water's core wholesale business

In the previous section, we described the limits that the Commissioner proposed to allow Scottish Water and its retail subsidiary to charge its household and non-household customers respectively.

The Commissioner also set limits on the amount that Scottish Water should be allowed to charge retailers who are selling to non-household customers (including its

own retail subsidiary). He referred to these as wholesale charges. However, he made it clear that he did not wish to pre-empt the market effects of competition on tariffs.

In his draft determination, the Commissioner explained how he separately identified, for each year:

- wholesale revenue; and
- retail revenue for:
 - household customers; and
 - non-household customers.

To calculate the allowed wholesale non-household revenue, the Commissioner started with total allowed revenue then subtracted:

- total revenue collected from household customers;
- total secondary revenue; and
- the non-household retail margin.

This calculation is shown in Table 34.21.

Table 34.21: Allowed revenue for wholesale businesses (outturn prices)

	2005-06	2006-07	2007-08	2008-09	2009-10
Total allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Less: household revenue	£628.8m	£642.0m	£661.2m	£667.5m	£673.8m
Less: secondary revenue	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m
Less: non-household retail margin	£32.3m	£32.7m	£35.5m	£36.4m	£36.3m
Non-household wholesale revenue	£290.3m	£294.0m	£294.6m	£290.6m	£293.2m

The Commissioner noted that there was no precedent in the UK water and sewerage industry for the setting of

wholesale charges. He expressed a view that Scottish Water should be given the opportunity to decide how it wanted to set its wholesale tariffs. The Commissioner asked Scottish Water to identify wholesale tariffs as part of the scheme of charges process for 2006-07. He asked that these non-household wholesale charges should be consistent with his implied non-household wholesale revenue cap for 2005-06.

The Commissioner considered that, as the market develops, Scottish Water may wish to rebalance wholesale tariffs better to reflect the underlying costs. He therefore set one K factor for the entire non-household wholesale business.

The Commissioner assumed that the annual percentage change in the wholesale customer base would be the same as that for the combination of the wholesale and retail business (see Table 34.20). Table 34.22 shows the Commissioner's forecasts of total revenue for the wholesale business on the assumption that tariffs do not change.

Table 34.22: Forecast non-household wholesale revenue resulting from changes in the customer base (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Previous year revenue	£290.3 m	£294.0 m	£294.6 m	£290.6 m
Percentage change due to customer base changes	1.3%	1.0%	1.2%	0.7%
Revenue base for year	£294.0 m	£297.0 m	£298.0 m	£292.8 m
Allowed revenue	£294.0 m	£294.6 m	£290.6 m	£293.2 m
(Allowed revenue/ revenue base) minus 1	0.0%	-0.8%	-2.5%	0.1%
The K factor (subtract RPI)	-2.5%	-3.3%	-5.0%	-2.4%

The Commissioner's calculation of non-household wholesale charge limits is shown in Table 34.23.

Table 34.23: Non-household wholesale charge limits (outturn prices)

	2005-06	2006-07	2007-08	2008-09	2009-10
Forecast non-household wholesale revenue	£322.7m	£326.7m	£330.1m	£333.9m	£336.3m
Percentage change		1.3%	1.0%	1.2%	0.7%

Conclusion

The Water Industry Commissioner's draft determination proposed that the required level of revenue for Scottish Water during the 2006-10 regulatory control period should increase by 5.51% in nominal terms. The Commissioner noted that such a nominal increase equates to a decrease of 4.87% in real terms. He further commented that this real terms decrease in charges was consistent with an improved level of service to customers and the improved financial health of the Scottish water industry.

The Commissioner believed that his analysis had demonstrated that the level of revenue set in the draft determination did not cut corners in terms of investment in improving public health, environmental compliance or easing development constraints.

He also made it clear that he believed that the proposed charge limits met all of the objectives outlined in the Ministerial Guidance, with the exception of the incentive to switch to a meter for higher banded households.

In particular, he noted that his charge limits were consistent with:

- harmonisation of charges across Scotland;
- the continuing link between household charges and Council Tax bands;
- customers who receive Council Tax relief having a new 25% discount on their charges; and

- rebalancing between non-household and household customer revenue of £44 million, achieved without any real increases and phased over the four-year regulatory control period.

In addition, the Commissioner separately identified wholesale and retail charge limits. He considered that these limits would allow both the wholesale and retail businesses sufficient revenue to fund their efficient operation.

Chapter 35:

Our charge caps

Introduction

In this chapter we explain the charge caps we have set. These caps will allow Scottish Water to finance its functions and to deliver both the essential and desirable ministerial objectives at the lowest reasonable overall cost. We also expect Scottish Water to improve the level of service it provides to customers and to begin to address leakage from water mains. We first set out how we calculated the revenue that Scottish Water requires, then explain how we determined the charge caps that are consistent with our assessment of the required level of revenue.

In the next chapter we examine how these charge caps will affect bills for some 'standard' customers. These comparisons may help customers better to understand the likely impact of this Strategic Review of Charges on the bill they pay.

The allowed level of revenue

In previous chapters we explained how we assessed:

- the customer base that we expect Scottish Water will have (if the ministerial objectives are met);
- our allowed for operating costs in each year;
- our allowed for costs of financing; and
- our allowed for capital expenditure.

We considered each of these factors in calculating the level of revenue that we believe Scottish Water will require in each year of the regulatory control period. We also took account of the ministerial requirement that Scottish Water should maintain and, if possible, improve its financial strength during the regulatory control period.

We examined how the charges that we set in this regulatory control period might impact on charges in the regulatory control period that begins in 2010. We wanted to make sure that we had not kept prices low in this period to the detriment of future customers. Our analysis is set out in Chapter 37. In addition, we required Scottish Water to comply with the cash-based financial ratios that

Ofwat used in its 2004 price review¹. These financial ratios are set out in Table 35.1.

Table 35.1: Financial ratios

Financial ratio	Targeted value
Cash interest cover	Around 3 times
Adjusted cash interest cover	Around 1.6 times
Funds from operations: debt	Greater than 13%
Retained cash flow: debt	Greater than 7%
Gearing	Less than 65%

We also assessed Scottish Water's financial strength using the financial ratios that the Water Industry Commissioner used in the Strategic Review of Charges 2002-06. However, we have not adjusted revenue to take account of these ratios.

We set revenue such that, in 2009-10, Scottish Water would meet all of the cash-based financial ratios if it performs in line with this final determination. We set the initial RCV based on our view of the level of revenue that Scottish Water requires in 2009-10.

Our calculation of revenue takes account of:

- the allowed for investment programme;
- the allowed for depreciation and infrastructure renewals charges;
- the total allowed for operating costs;
- the allowed for costs of PPP schemes;
- our estimate of the proceeds from the disposal of assets;
- allowed for corporation tax; and
- other inputs to the financial model

The investment programme

In Chapter 20 we set out the capital expenditure that we have allowed for to meet the 'essential' and 'desirable' ministerial objectives. We summarise this investment programme in Table 35.2.

¹ Ofwat, 'Future water and sewerage charges 2005-10: The final determination, 2004.

Table 35.2: Allowed for investment programme (outturn prices)

Investment category	2005-06 (early start)	2006-07	2007-08	2008-09	2009-10
Overhang from Quality and Standards II	£0.0m	£243.7m	£30.9m	£0.0m	£0.0m
Infrastructure renewals expenditure (Q&SIII)	£0.0m	£87.9m	£90.0m	£92.2m	£94.4m
Other investment (including additional retail investment)	£25.0m	£208.5m	£473.7m	£538.7m	£588.4m
Total investment	£25.0m	£540.1m	£594.6m	£630.9m	£682.8m

Depreciation and infrastructure renewals charges

The RCV approach to price setting requires us to make allowances for appropriate depreciation and infrastructure renewals charges. The RCV approach to price setting includes these charges to allow for customers' use of the asset base in each year of the regulatory control period. Our allowances for depreciation and infrastructure renewals charges do not affect Scottish Water's compliance with the Ofwat cash-based financial ratios and, as such, do not impact on customers' charges in this regulatory control period.

We have calculated Scottish Water's total depreciation charge by taking account of the depreciation of existing assets (based on Scottish Water's net modern equivalent asset value) and depreciation of new assets commissioned in the 2006-10 regulatory control period. We set the infrastructure renewals charge equal to the allowed for capital expenditure on infrastructure renewals that was shown in Table 35.2. The depreciation and infrastructure renewals charges are shown in Table 35.3.

Table 35.3: Depreciation and infrastructure renewals charges (current cost basis) – outturn prices

Depreciation category	2006-07	2007-08	2008-09	2009-10
Current cost depreciation of existing assets	£177.8m	£182.1m	£179.1m	£175.9m
Current cost depreciation of new assets (after 1 April 2006)	£8.2m	£27.2m	£49.3m	£73.5m
Infrastructure renewals charge	£87.9m	£90.0m	£92.2m	£94.4m
Total depreciation and infrastructure charges	£273.9m	£299.3m	£320.7m	£343.9m

² This includes additional financing and tax costs associated with the separation of retail activities into a licensed subsidiary.

Total allowed for operating expenditure

In Chapter 14 we summarised the level of operating costs that we have allowed for to meet both the 'essential' and the 'desirable' ministerial objectives. Our allowed for total operating costs includes:

- base operating expenditure, including any adjustments;
- our estimate of the scope for efficiency;
- our estimate of inflation;
- additional operating costs to improve performance; and
- new operating expenditure.

We summarise our allowed for total operating costs in Table 35.4.

Table 35.4: Total allowed for operating expenditure (outturn prices)

Investment category	2006-07	2007-08	2008-09	2009-10
Total water operating costs	£149.8m	£154.3m	£169.3m	£178.5m
Total waste water operating expenditure	£126.8m	£128.0m	£130.4m	£135.0m
Additional retail recurring costs ²	£6.3m	£6.5m	£10.0m	£10.2m
Total allowed for operating expenditure	£283.0m	£288.8m	£309.6m	£323.7m

Costs of PPPs

We explained our approach to PPP in Chapter 20. In that chapter, we noted that some additional investment has become necessary at the sites that are managed by PPP contractors. We consider that this investment should be delivered by these contractors and may require contract amendments. In Table 35.5, we set out the baseline for the PPP contracts that we have allowed and our allowance for new costs to meet the ministerial objectives at PPP sites.

Table 35.5: Total allowed for costs for PPPs (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Allowed for costs of existing contracts	£122.4m	£125.0m	£127.7m	£130.3m
Additional costs resulting from additional investment	£1.0m	£1.0m	£2.1m	£4.9m
Total allowed for PPP costs	£123.4m	£126.0m	£129.8m	£135.2m

In our financial model we treat PPP costs as an operating expense. As a result, changes in the allowed for level of PPP costs have a direct impact on our assessment of the level of revenue that Scottish Water requires.

Asset disposals and cash proceeds

We do not expect asset disposals to have a material impact on charges. Our estimates have taken account of the level of asset sales that Scottish Water has made in the past three years. We outline our assumptions in Table 35.6.

Table 35.6: Asset disposals and cash proceeds (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Asset disposals (historic cost net book value)	£1.0m	£1.0m	£1.0m	£1.0m
Cash proceeds from asset disposals	£1.0m	£1.0m	£1.0m	£1.0m

Corporation tax

We have taken account of likely changes in the calculation of tax by Her Majesty's Revenue and Customs (HMRC) during the 2006-10 regulatory control period. Our approach is based on advice from Ernst & Young LLP and our understanding of the potential introduction of international accounting standards. We have also taken account of both Scottish Water's second draft business plan and its representations on its potential tax liability.

Scottish Water currently claims its infrastructure renewals charge as an expense for tax purposes. Our understanding is that this practice may soon not satisfy HMRC. In future, expenditure on infrastructure renewals may not be deductible in the year of spend and

instead may be treated as investment in long life assets. We have assumed that this effect occurs in 2007-08.

This change will increase the taxable surplus earned by Scottish Water and, as such, will initially increase Scottish Water's tax liability. It is important to note, however, that over the life of these assets Scottish Water will pay the same level of tax.

We also took full account of Scottish Water's representations on tax and have amended our modelled assumptions accordingly.

We show our estimate of the annual corporation tax payable by Scottish Water in Table 35.7.

Table 35.7: Projection of annual corporation tax payable

	2006-07	2007-08	2008-09	2009-10
Corporation tax	£0.0m	£0.0m	£11.8m	£26.0m

If we have overestimated the tax that is payable, we believe that Scottish Water ought to invest this additional revenue in the gilts buffer (described in Chapter 32).

Other financial model inputs

We set an allowed for rate of return of 0.72% real post-tax. We also allowed for the extra costs incurred by Scottish Water for all of its embedded debt that had a coupon greater than 4.6% nominal. The interest rate on new or refinanced debt was set in line with the rate of return on debt that was included in our cost of capital calculation. We have used a debt to RCV ratio of 65% in our application of our hybrid weighted average cost of capital (WACC).

The financial model also uses two separate inflation rates. We accepted Scottish Water's representations on retail price inflation (RPI) and the attractiveness of there being consistency with Ofwat's assumptions. We therefore used the RPI to inflate the costs of all operating expenditure and PPP costs. We have used the construction output price index (COPI) to inflate the allowed for capital expenditure. We have set charges relative to RPI in order to remove the financing risk from Scottish Water.

Our financial model also takes account of the unsubstantiated claim for efficiency that the former East of Scotland Water Authority made. In line with the Commissioner's agreement with Scottish Water's Board, we have subtracted £16.04 million a year in outturn prices from our assessment of the required level of capital expenditure.

Revenue and financial ratios

We used our financial model to identify the cash return on the RCV that Scottish Water required in 2009-10 if it was to comply with all of the cash-based financial ratios used by Ofwat. We were able to determine the regulatory capital value that we required in 2009-10 because we had already set an allowed for rate of return and an allowance for embedded debt.

We used our financial model to calculate the value of the initial RCV and the 2009-10 RCV. We have not adjusted our analysis to take account of the double-counting effect identified by Scottish Water. We discussed this further in Chapter 26.

Table 35.8 sets out our forecast RCV in each year of this regulatory control period.

Table 35.8: Calculation of RCV in each year of this regulatory control period (outturn prices)

		2006-07	2007-08	2008-09	2009-10
	Opening RCV	£3,751.3m	£4,110.3m	£4,507.3m	£4,929.2m
plus	Inflation adjustment	£93.8m	£102.8m	£112.7m	£123.2m
plus	New investment	£540.1m	£594.6m	£630.9m	£682.8m
less	Depreciation	£186.0m	£209.2m	£228.5m	£249.5m
less	Infrastructure renewals charge	£87.9m	£90.0m	£92.2m	£94.4m
less	Disposal of assets	£1.0m	£1.0m	£1.1m	£1.1m
equals	Closing RCV	£4,110.3m	£4,507.3m	£4,929.2m	£5,390.3m
	Year average	£3,930.8m	£4,308.8m	£4,718.3m	£5,159.8m

We allowed Scottish Water the level of revenue that is shown in Table 35.9 for each year of the regulatory control period. This table also shows the annual increase in revenue in both nominal and real terms. We estimated real increases based on an assumption of 2.5% retail price inflation.

Table 35.9: Allowed for level of revenue (outturn prices)

	2005-06 ³	2006-07	2007-08	2008-09	2009-10
Operating costs	n/a	£283.0m	£288.8m	£309.6m	£323.7m
PPP charge	n/a	£123.4m	£126.0m	£129.8m	£135.2m
Current cost depreciation	n/a	£186.0m	£209.2m	£228.5m	£249.5m
Infrastructure renewals charge	n/a	£87.9m	£90.0m	£92.2m	£94.4m
Cash return on the RCV ⁴	n/a	£158.1m	£174.3m	£190.8m	£208.7m
Embedded debt allowance	n/a	£33.4m	£31.9m	£30.5m	£29.0m
Tax	n/a	£0.0m	£0.0m	£11.8m	£26.0m
Calculated revenue	n/a	£871.9m	£920.4m	£993.2m	£1,066.4m
Financeability adjustment	n/a	£109.3m	£84.4m	£42.7m	£0.0m
Total revenue	£963.0m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Year-on-year increase (nominal)	–	1.9%	2.4%	3.1%	2.9%
Year-on-year increase (real)	–	-0.6%	-0.1%	0.6%	0.4%

We allowed Scottish Water to raise sufficient revenue from customers such that it will comply with all of the cash-based financial ratios used by Ofwat. We forecast the level of each ratio in Table 35.10. In line with the Minister's principles of charging, we sought to introduce a smooth profile for charges. This required us to add a financeability adjustment in the first three years of the regulatory control period.

Table 35.10: Projection of main financial ratios 2006-10

Financial ratio	Targeted value	2006-07	2007-08	2008-09	2009-10
Cash interest cover	Around 3 times	3.6	3.8	3.7	3.5
Adjusted cash interest cover	Around 1.6 times	2.3	2.5	2.3	2.0
Funds from operations: debt	Greater than 13%	14.9%	16.0%	14.5%	13.0%
Retained cash flow: debt	Greater than 7%	14.9%	16.0%	14.5%	13.0%
Gearing	Less than 65%	63.8%	61.6%	60.3%	60.0%

Table 35.10 shows that Scottish Water at least complies with the targeted value for each ratio in each year. Scottish Water's overall financial strength, as measured by the debt to RCV ratio, improves modestly over the regulatory control period.

³ Revenue for 2005-06 was determined using a cash-based approach, we therefore do not break it into the components of an RCV-based approach.

⁴ Includes working capital adjustment.

In Table 35.11 we set out other financial information from the financial model. This includes the two ratios from Ofwat's 1999 price determinations that underpinned the Commissioner's advice in the Strategic Review of Charges 2002-06. We have also set out the average interest rate and other traditional accounting ratios.

Table 35.11: Projection of other financial indicators 2006-10

	2006-07	2007-08	2008-09	2009-10	Target level
Debt payback period (EBITDA basis)	4.8	4.6	4.9	5.2	5
Debt payback period (EBDA basis)	6.7	6.3	6.9	7.7	7
Cash flow to capital expenditure ratio (EBDA basis)	73%	75%	68%	62%	n.a.
Weighted average cost of debt	5.9%	5.7%	5.6%	5.5%	n.a.
Historic cost, return on capital employed	4.4%	4.7%	4.2%	3.5%	n.a.
Current cost, return on capital employed	0.3%	0.3%	0.2%	0.2%	n.a.

We also compared our allowed level of revenue with the level of revenue that Ofwat allowed the water and sewerage companies in England and Wales. We examined the total allowed revenue in 2003-04 prices and divided this by the total number of connected properties. We show this comparison in Table 35.12.

Table 35.12: Estimated revenue per billed property for all water and sewerage companies in Great Britain 2005-10

	Average revenue 2005-10 ^{5,6}	Average number of properties in millions ⁷	Average revenue per property
Scottish Water	£909.2m	2.30	£394
Anglian	£812.3m	2.21	£368
Welsh	£541.5m	1.30	£417
Northumbrian	£514.2m	1.49	£345
Severn Trent	£1,127.0m	3.50	£322
South West	£361.2m	0.70	£516
Southern	£550.4m	1.42	£387
Thames	£1,333.2m	4.42	£302
United Utilities	£1,238.0m	2.97	£417
Wessex	£337.0m	0.82	£411
Yorkshire	£700.2m	2.06	£340

Scottish Water receives £394 for each connected property. In this comparison, Scottish Water benefits from its lower cost of capital relative to the equity-financed companies south of the border. The cost to customers in Scotland if the cost of capital that is available to Scottish Water were the same as the rate of return allowed by Ofwat in its 2004 final price determination is £141 million (2003-04 prices). This is equivalent to an extra £61 (2003-04 prices) for each connected property. This would give Scottish Water (at £455) the second highest revenue for each connected property in Great Britain.

Public expenditure

Scottish Water will borrow more than £750 million in order to finance its large enhancement investment programme. This net new debt counts as public expenditure.

Scottish Ministers have allowed Scottish Water to borrow £182 million each year. They also allowed Scottish Water to carry forward any unused public borrowing from the 2002-06 regulatory control period.

The use of public expenditure is summarised in Table 35.13.

Table 35.13: Forecast public expenditure 2006-10 (outturn prices)

	2006-07	2007-08	2008-09	2009-10
2002-06 carry over	£231.4m			
Available public expenditure at start of year (including carry-over)	£413.4m	£447.7m	£479.1m	£462.6m
Public expenditure used	£147.7m	£150.6m	£198.4m	£261.3m
Unused public expenditure at year end	£265.7m	£297.1m	£280.6m	£201.3m

It was not possible to increase the use of public expenditure and comply fully with all of the cash-based financial ratios in each year.

⁵ Ofwat did not disaggregate revenue or number of properties on a year-by-year basis. Instead it used the entire 2005-10 period. As such, Scottish Water's calculations also include 2005-06 revenue and properties for comparison purposes.

⁶ Ofwat's final determination used a 2002-03 price base, therefore revenue figures were indexed by financial year average RPI to obtain 2003-04 prices.

⁷ Simple average between water and waste water billed connections.

We believe that the Scottish Executive Environment and Rural Affairs Department should hold £50 million of the unused public expenditure in reserve. In our view, this allowance should be sufficient to cover costs, outside the control of management, that would be incurred before an interim determination would be triggered.

It is for the Scottish Executive to decide how it would deal with underperformance against the final determination. Our view is that customers should not be asked to pay twice for the same output.

Summary financial statements

A summary income and expenditure account is set out in Table 35.14. A more detailed income and expenditure account is available in Appendix 9. The appendix sets out the full results of our financial model and our modelling assumptions.

Table 35.14: Summary income and expenditure accounts 2006-10 (current cost basis, outturn prices)

	2006-07	2007-08	2008-09	2009-10
Turnover	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Operating costs	-£406.4m	-£414.8m	-£439.4m	-£458.9m
Infrastructure renewals charge	-£87.9m	-£90.0m	-£92.2m	-£94.4m
Current cost depreciation	-£187.6m	-£210.9m	-£230.2m	-£251.2m
Operating surplus before working capital adjustments	£299.2m	£289.0m	£274.2m	£262.0m
Working capital adjustments	£3.7m	£3.1m	£3.4m	£3.7m
Operating surplus before interest	£302.9m	£292.0m	£277.6m	£265.7m
Net interest payable	-£150.8m	-£156.2m	-£162.5m	-£171.3m
Net gain/(loss) on disposal of assets	£0.0m	£0.0m	-£0.1m	-£0.1m
Current cost financing adjustment	£3.8m	£5.3m	£6.8m	£7.8m
Surplus before taxation	£155.9m	£141.1m	£121.7m	£102.1m
Taxation (including deferred tax)	-£70.0m	-£69.4m	-£63.4m	-£57.1m
Current cost surplus for financial year	£85.9m	£71.6m	£58.3m	£45.1m

A summary balance sheet is set out in Table 35.15.

Table 35.15: Summary balance sheets 2006-10 (current cost basis, outturn prices)

	2006-07	2007-08	2008-09	2009-10
Tangible assets	£25,241.1m	£26,141.1m	£27,077.7m	£28,065.5m
Investments	£0.1m	£0.1m	£0.1m	£0.1m
Working capital	-£122.6m	-£136.5m	-£149.3m	-£163.8m
Net operating assets	£25,118.5m	£26,004.7m	£26,928.5m	£27,901.8m
Other short-term assets	-£37.1m	-£39.2m	-£36.1m	-£36.1m
Other long-term assets	-£209.8m	-£266.7m	-£310.8m	-£335.5m
Net assets employed	£24,871.7m	£25,698.8m	£26,581.7m	£27,530.2m
Government loans	£2,601.3m	£2,758.5m	£2,964.9m	£3,229.2m
Other reserves (including current cost reserve)	£21,887.0m	£22,485.4m	£23,103.4m	£23,742.6m
Total retained earnings	£383.3m	£455.0m	£513.3m	£558.4m
Total capital and reserves	£24,871.7m	£25,698.8m	£26,581.7m	£27,530.2m

A summary cash flow account is set out in Table 35.16.

Table 35.16: Summary cash flow statements 2006-10 (current cost basis, outturn prices)

	2006-07	2007-08	2008-09	2009-10
Current cost operating profit	£299.2m	£289.0m	£274.2m	£262.0m
Total depreciation, amortisation and infrastructure charges	£275.5m	£300.9m	£322.3m	£345.6m
Change in working capital	-£32.5m	£9.3m	£9.3m	£10.3m
Net cash flow from operations	£542.2m	£599.2m	£605.8m	£617.8m
Infrastructure renewals expenditure	-£94.6m	-£90.0m	-£92.2m	-£94.4m
Other net asset additions	-£444.5m	-£503.6m	-£537.7m	-£587.4m
Net cash flow from operations less investment	£3.1m	£5.6m	-£24.1m	-£64.0m
Financing cash flow				
Loans repaid	£59.6m	£68.0m	£81.1m	£66.4m
Interest paid	£150.8m	£156.2m	£162.5m	£171.3m
Taxation paid	£0.0m	£0.0m	£11.8m	£26.0m
New debt (including refinancing)	£207.3m	£218.6m	£279.5m	£327.7m

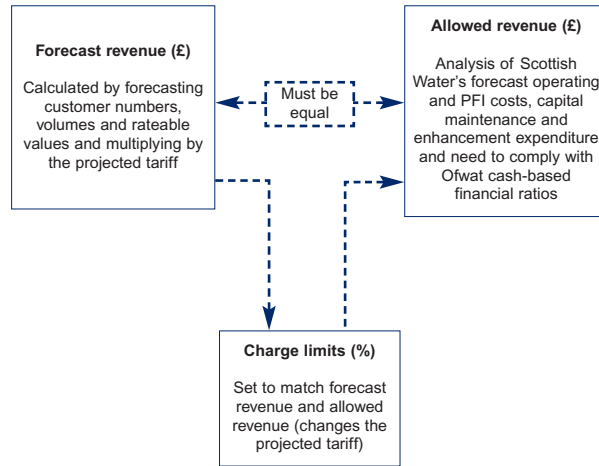
Retail charge limits

In this determination we set two different types of charge caps:

- 'retail' charge caps – these limit increases in the prices that Scottish Water can charge household customers and that its retail subsidiary will be able to charge non-household customers⁸; and
- 'wholesale' charge caps – these limit increases in the prices that Scottish Water can charge retailers of non-household customers (including its own retail subsidiary).

In this section we explain the retail charge limits that we have set. The process for setting retail charge limits is represented in Figure 35.1.

Figure 35.1: Setting retail charge limits



We have explained our allowed level of revenue earlier in this chapter. We explained in Chapter 8 the customer base that we expect Scottish Water will have in each year.

In translating our allowed level of revenue into charges to customers, we also took full account of the Minister's principles of charges. The principles required:

- charges to be set on a harmonised basis across Scotland;
- charges to be based on Council Tax bands for household unmeasured water charges;
- no additional incentive for household customers to become metered;
- a rebalancing of £44 million of revenue from non-household customers to household customers in order to reduce the identified cross-subsidy;
- the introduction of a new 25% discount for household customers in receipt of Council Tax benefit;
- the abolition of the 50% discount for second homes; and
- progress towards phasing out charging for non-household customer based on their rateable values, by:

⁸ We intend to make it a licence condition for the new retail subsidiary that it agrees to be bound by these charge caps. The non-household charge caps will also apply to Scottish Water in its role as the 'supplier of last resort'.

- moving to full metering of non-household customers, as far as is practicable by 2010; and
- moving to banded charges for roads drainage and highway drainage charges.

Table 35.17 summarises the principles of charging.

Table 35.17: Principles of charging

	Current charging arrangements 2005-06	Updated charging arrangements for 2006-10
Unmeasured household water and waste water	Based on Council Tax band of property. Discounts available for: <ul style="list-style-type: none"> • single occupants (25%); and • second home owners (or properties which are vacant)⁹ (50%). 	Continue to be based on Council Tax band: <ul style="list-style-type: none"> • Discounts available to single occupants to remain. • Discounts for second-home owners to be removed. • Customers in receipt of Council Tax benefit to get a new 25% discount.
Unmeasured non-household water and sewage	Minimum charge for connection to the network. Additional charge based on a proportion of the rateable value of the property.	To be metered where practical and as far as is possible by 2010.
Metered water and sewage	Fixed charge based on the size of the meter. Additional charge based on the amount of water consumed and waste water discharged.	No change to charging arrangements.
Surface water drainage	Measured household customers pay in relation to their Council Tax band. Non-household customers pay a charge that is a proportion of their rateable value.	No changes announced for household customers. Non-household customers to pay in relation to the surface area of their property. Change to be implemented as far as is practical by 2010.

This final determination complies fully with the Ministers' principles of charging.

In Table 35.9 we set out the total level of revenue that we have allowed Scottish Water. This revenue covers both primary and secondary services. Primary services include water and waste water services (eg the collection of sewage). Secondary services include activities such as water for building work and field troughs, and septic tank services.

We only set charge caps for primary services. We have taken account of the revenue that Scottish Water is likely to collect from secondary services but we do not determine individual charges for these services. We expect Scottish Water to ensure that the costs of providing secondary services are covered by revenue from customers of these services. We subtract forecast revenue from secondary services from the total allowed for revenue to calculate the level of revenue that we need to raise from customers of primary services.

In its representations on the draft determination, Scottish Water argued that the level of secondary revenue that the Commissioner had forecast was too high. Scottish Water suggested that we should base our forecast of secondary revenue on its actual 2004-05 revenue.

We accepted this representation but made a small adjustment to reflect exceptional items included in the reported revenue for secondary services. We also increased it by 2.8% (to reflect the actual increase in charges for secondary services in 2005-06) to estimate the revenue for 2005-06. We increase our estimated 2005-06 revenue for secondary services at 2.5% a year, in line with our estimate of retail price inflation.

We outline our calculation of primary revenue in Table 35.18.

Table 35.18: Calculation of primary revenue (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Allowed revenue	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Secondary revenue	£11.8m	£12.1m	£12.4m	£12.7m
Primary revenue	£969.4m	£992.6m	£1,023.5m	£1,053.7m

We have used the household and non-household shares of primary revenue in 2003-04 to ensure that we have unwound the £44 million of cross-subsidy identified in the Ministers' principles of charging. We show our calculation in Table 35.19.

⁹ As part of a change in Council Tax collection arrangements, second home owners in some council areas no longer receive the full 50% discount. Councils can, at their discretion, reduce it to as low as 10%.

Table 35.19: Calculation of primary revenue from household and non-household customers

	2003-04 actual revenue	Rebalancing, based on 2003-04 (from ministerial guidance)	2003-04 revenue after rebalancing (based on Scottish Water's Annual Return 2003-04)
Household customers	£580.3m	+£44m	£624.3m
Non-household customers	£348.6m	-£44m	£304.6m
Total	£928.9m	£0m	£928.9m
Percentage household	62.5%	-	67.2%
Percentage non-household	37.5%	-	32.8%

We set charge limits such that forecast revenue in 2010 from:

- household customers is £708.4 million (67.2% of £1,053.7 million); and
- non-household customers is around £345.3 million (32.8% of £1,053.7 million).

We first forecast revenue without changing charges. This allows us to calculate the annual revenue that would accrue simply as a result of any underlying changes in the customer base. If the forecast level of revenue were greater than the allowed level of revenue, then we would set lower charges. The converse is also true. We have forecast revenue for each year using 2005-06 tariffs. This is summarised in Table 35.20.

Table 35.20: Revenue forecasts using 2005-06 tariffs and comparison with allowed revenue

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage
Forecast household	£628.8m	£629.6m	£635.9m	£645.1m	£654.4m	66.3%
Forecast non-household	£322.7m	£324.0m	£324.7m	£329.2m	£332.2m	33.7%
Forecast primary	£951.5m	£953.6m	£960.6m	£974.3m	£986.6m	100.0%
Forecast secondary ¹⁰	£11.5m	£11.8m	£12.1m	£12.4m	£12.7m	
Forecast core revenue	£963.0m	£965.5m	£972.7m	£986.7m	£999.4m	
Allowed revenue	£963.0m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m	
Revenue shortfall		£15.7m	£32.0m	£49.2m	£67.1m	

If forecast charges do not change, forecast revenue will be below the allowed level of revenue in each year. Table 35.20 also shows that the percentage of revenue that comes from household customers by 2009-10 is 66.3%. This would not unwind the £44 million cross-subsidy. We therefore had to increase household charges relative to non-household charges.

We have set charge caps for both household and non-household customers. Our charge caps will limit the increases in tariffs that Scottish Water or its new retail subsidiary can offer its non-household customers. We intend to make it a licence condition of the new retail subsidiary that it agrees to be bound by these charge caps. The retail subsidiary will initially provide services to all non-household customers. In order to ensure that we have properly identified the revenue that should accrue to Scottish Water's retail subsidiary, we have had to amend the 20mm water and waste water tariff basket. We have removed the small amount of revenue that Scottish Water receives from metered household customers and allocated this to the two household tariff baskets. This will ensure that we have complied with the principles of charging and have not increased the incentive for households to switch to a meter.

¹⁰ Secondary revenue is assumed to increase at 2.5% (RPI) each year.

The results of our tariff basket model are set out in Table 35.21 and 35.22. This summarises the required increases in nominal charges for households and non-household respectively to comply with the Ministers' principles of charging.

Table 35.21: Required nominal charge increase for each household tariff basket

	2006-07	2007-08	2008-09	2009-10
Household water	2.0%	2.0%	2.0%	2.0%
Household waste water	2.0%	2.0%	2.0%	2.0%

Table 35.22: Required nominal charge increase for each non-household tariff basket

	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	1.0%	1.0%	1.0%	1.0%
Non-household unmeasured waste water	1.0%	1.0%	1.0%	1.0%
Non-household measured water (with 25mm connection or greater)	1.0%	1.0%	1.0%	1.0%
Non-household measured waste water (with 25mm connection or greater)	1.0%	1.0%	1.0%	1.0%
Non-household surface water drainage	1.0%	1.0%	1.0%	1.0%
Trade effluent	1.0%	1.0%	1.0%	1.0%
Non-household standard metered water connection (20mm)	1.0%	1.0%	1.0%	1.0%
Non-household standard metered waste water connection (20mm)	1.0%	1.0%	1.0%	1.0%

Tables 35.21 and 35.22 show that no household (except a second home owner) will face an increase in their water and sewerage bill in real terms during this regulatory control period. Non-household customers who pay tariffs that are included in Scottish Water's charges scheme will see their bills fall by just over 6% in real terms during the regulatory control period. The charge limits set out in Tables 35.21 and 35.23 are consistent with the revenue forecasts shown in Table 35.24.

Table 35.23: Revenue forecasts using our charge limits (outturn prices)

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage
Forecast household	£628.8m	£642.2m	£661.6m	£684.6m	£708.4m	67.2%
Forecast non-household	£322.7m	£327.1m	£331.0m	£338.9m	£345.3m	32.8%
Forecast primary	£951.5m	£951.5m	£969.4m	£1,023.5m	£1,053.7m	100.0%
Forecast secondary	£11.5m	£11.8m	£12.1m	£12.4m	£12.7m	
Forecast core revenue	£963.0m	£963.3m	£981.5m	£1,035.9m	£1,066.4m	
Allowed revenue	£963.0m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m	

The difference between the charge limit and RPI is termed the 'K' factor. In order to calculate the actual nominal change in charges, it is necessary to add the K factor to the retail price index. Scottish Water therefore has the same protection against inflation risk as the water and sewerage companies in England and Wales.

We set out the K factors for household customers and the retail subsidiary company in Tables 35.24 and 35.25 respectively. As noted above, the K factors in Table 35.25 will be incorporated into the licence of Scottish Water's retail subsidiary.

Table 35.24: The K factor for each retail household tariff basket

	2006-07	2007-08	2008-09	2009-10
Household water	-0.5%	-0.5%	-0.5%	-0.5%
Household waste water	-0.5%	-0.5%	-0.5%	-0.5%

Table 35.25: The K factor for each retail non-household tariff basket

	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household unmeasured waste water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured waste water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household surface water drainage	-1.5%	-1.5%	-1.5%	-1.5%
Trade effluent	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered waste water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%

The provisional gross retail margin

We outlined above the retail charge limits that will apply to both Scottish Water and its retail subsidiary. In this determination we have also set a provisional limit on what Scottish Water can charge both its retail subsidiary and any other retailers to non-household customers that might enter the market.

In setting retail charge caps we had regard to all of the costs that we expect Scottish Water (and its planned subsidiary) to incur over the 2006-10 regulatory control period. This includes the additional capital expenditure, tax, operating expenditure and financing costs associated with creating the new retail subsidiary and the retail market.

We asked Scottish Water to submit a business plan as part of the licence application for its retail subsidiary in December 2005. This business plan will allow Ministers to make decisions about the assets and liabilities that should be transferred from Scottish Water to its retail subsidiary. We expect to have to review the wholesale charge limit once we have more detailed information about the transfer of assets and liabilities.

The retail service provider will be the sole point of contact for the customer. As such, the retailer will collect non-household customers' charges. It will, of course, pass the majority of this revenue back to Scottish Water. It will retain a retail gross margin, which must be at least sufficient to cover its efficient costs.

In the draft determination, the Commissioner ensured that all secondary revenue¹¹ would accrue to Scottish Water as the wholesaler. In its representations, Scottish Water argued that some secondary revenue should be classified as retail because retailers were likely to offer these services. We have accepted this representation and added revenue from taps, troughs and building water to total revenue. Total revenue for the retail business is shown in Table 35.26.

¹¹ Primary services include water and waste water services (eg the collection of sewage). Secondary services include activities such as providing water for building work and field troughs, and septic tank services.

Table 35.26: Calculation of total retail revenue (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Non-household primary revenue	£327.1m	£331.0m	£338.9m	£345.3m
Taps, troughs and building water revenue	£4.8m	£4.9m	£5.0m	£5.1m
Total retail revenue	£331.9m	£335.9m	£343.9m	£350.5m

We endeavoured to set a provisional wholesale charge limit that will be broadly similar to the final limit. However, we have set only a provisional limit at this time because we do not want to pre-empt decisions by the Scottish Ministers on the transfer of assets and liabilities. We believe that by setting a hard constraint at the retail level we have created an appropriate incentive for Scottish Water to seek to allocate its assets correctly between its retail and wholesale businesses.

We analysed the retail margin in four categories as follows:

- operating expenditure;
- current cost depreciation;
- financing costs; and
- taxation.

We established a gross retail margin that would allow Scottish Water's retail subsidiary to cover its annual costs (based on current cost accounting) and pay a dividend equal to its retained earnings. The retail subsidiary would only increase its retained earnings if it outperformed its regulatory contract.

We consider that any dividends paid to Scottish Water by its subsidiary should be allocated to the gilts buffer described in Chapter 25.

Retail operating expenditure

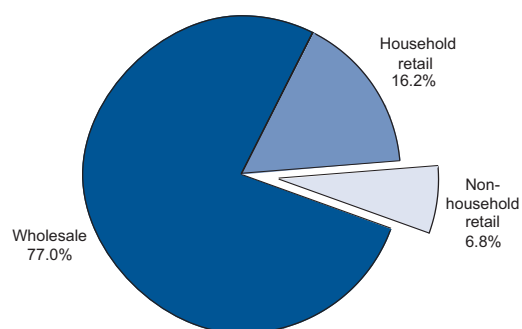
We considered:

- retail base operating expenditure;
- any appropriate additions to base operating expenditure; and
- the appropriate level of new operating expenditure.

In his draft determination, the Commissioner analysed 2003-04 costs. In its representations, Scottish Water argued that its 2003-04 operating costs were atypical because they included an unusually high bad debt charge. We analysed non-household retail base operating expenditure using information that Scottish Water provided in its 2004-05 M tables¹². We believe that our updated analysis should therefore have taken account of Scottish Water's representations.

Figure 35.2 sets out an analysis of 2004-05 operating costs between wholesale, household retail and non-household retail.

Figure 35.2: Analysis of 2004-05 operating expenditure (excluding exceptional items)



We assumed that non-household retail operating expenditure represents 6.8% of the total baseline operating expenditure of the vertically integrated business¹³ in each year.

¹² The M tables are part of the regulatory accounting process. Scottish Water identifies costs and revenues associated with certain activities and allocates them either to wholesale, retail or retail non-household.

¹³ A vertically integrated company carries out the functions of production, distribution and supply.

As explained in Chapter 20, we allowed for increases in the baseline operating costs of the vertically integrated business in the following areas:

- non-domestic rates;
- pension costs;
- power;
- SEPA charges;
- regulation; and
- the Reporter.

In our view most of these additional baseline costs relate to Scottish Water's wholesale business. However, we recognise that the increase in baseline pension costs will affect both Scottish Water's wholesale and retail businesses. We divided the extra pension costs between the wholesale and retail business. Our provisional wholesale charge caps include the same share of additional pension costs (93.2%) as of other baseline costs.

We applied the same efficiency targets to non-household retail baseline operating costs as we applied to the baseline operating costs of the vertically integrated business.

In Chapter 14, we outlined the additional operating costs that we allowed for as a result of the separation of non-household retail activities into a separate licensed subsidiary. Our provisional wholesale charge caps assumed that these additional operating costs are split as shown in Table 35.27.

Table 35.27: Additional allowed for operating costs as a result of the separation of retail activities (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Total additional operating costs	£3.0m	£3.0m	£6.0m	£6.0m
Retail subsidiary additional operating costs	£2.0m	£2.0m	£4.0m	£4.0m
Wholesale additional operating costs	£1.0m	£1.0m	£2.0m	£2.0m

These allowances include the costs of regulating the licensing framework after April 2008, which are estimated to be around £1.0 million a year.

We have not allocated these additional operating costs to specific purposes. We consider that our allowance should be sufficient to cover the costs that Scottish Water will reasonably and efficiently incur. In this regard we have responded to Scottish Water's representations about the Commissioner's approach. We have not sought to place an efficiency target on our assessment of the reasonable additional operating costs that Scottish Water may incur.

Our provisional wholesale charge caps allow for the non-household retail operating cost shown in Table 35.28.

Table 35.28: Assumed retail operating costs (2003-04 prices)

	2006-07	2007-08	2008-09	2009-10
Baseline	£18.1m	£18.1m	£18.1m	£18.1m
Additions to baseline	£0.1m	£0.2m	£0.3m	£0.3m
Efficiency target	£-1.7m	£-1.9m	£-2.2m	£-2.4m
Additional	£2.0m	£2.0m	£4.0m	£4.0m
Total	£18.5m	£18.3m	£20.2m	£20.1m

In its second draft business plan, Scottish Water proposed full metering of all business customers by 2010. It noted that it planned to begin to move towards requiring all non-household customers to be metered in 2006, but that it did not intend to require customers to pay on a measured basis until 2010.

We consider that Scottish Water's proposal to install meters, but to continue charging on an unmeasured basis, is impractical. In our view meters should be used for charging as soon as they are installed. This is important for retail competition. We have therefore set a target that Scottish Water install meters at the c.40,000, non-household properties who are not yet metered by 2008. We also consider that Scottish Water should be required to fit meters within one calendar month if a customer wishes to switch retail suppliers after 2008.

We considered the costs of metering in some detail. The wholesale business will meet the capital costs of meters. We believe that it is important that a licensed retail supplier should request an appropriate level and type of metering. We can help to ensure that this happens by charging the retailer an amount equal to the annualised cost of installing and maintaining meters. In effect, the retailer is leasing the meter infrastructure from Scottish Water. These costs need to be added to the operating costs of the new retailer. This reduces costs for the wholesaler by an equivalent amount and there is therefore no net impact on customers.

We estimated the annualised cost of metering in 2006-07 at £0.6 million (2003-04 prices). This increases to £0.7 million (2003-04 prices) by 2009-10. This is based on the expected number of water and waste water meters in 2006-07. We expect Scottish Water to make significant progress towards the ministerial metering objective in the first year of this regulatory control period. Our allowances for metering costs reflects this assumption.

Our estimate of meter cost is based on Ofwat's estimate of the annualised cost of a household meter of £4 to £6¹⁴. We believe that non-household customers will on average require larger meters and we have sought to take account of this by increasing Ofwat's £4 to £6 to £7. We assumed that cost splits evenly between water and waste water. Our relatively small adjustment to the allowed for unit cost takes account of the fact that more than 95% of measured non-household customers have a 25mm or smaller meter¹⁵.

Current cost depreciation

Within the retail gross margin, we must also allow for an appropriate level of current cost depreciation. Current cost depreciation reflects the costs associated with the use of retail assets during the year.

The retail current cost depreciation charge will depend on:

- the assets that Scottish Water transfers to its retail subsidiary;

- any Quality and Standards III investment (including capital maintenance) that is relevant to the retail business; and
- any new investment that results from the separation of non-household retail activities into a separate licensed business.

We expect that Scottish Water's retail business plan will bring forward proposals in each of these areas.

We are not persuaded that the transfer of assets that Scottish Water proposed in its original retail business plan properly reflected the assets that should be transferred to its retail subsidiary. Moreover, in our view, the asset transfer seemed to be inconsistent with the depreciation charges recognised in Scottish Water's regulatory accounts.

Scottish Water recognised £1.2 million and £1.7 million of depreciation in its regulatory accounts for 2003-04 and 2004-05. We consider that this level of depreciation would be more consistent with an asset transfer of between £8 million and £16 million. Our provisional wholesale charge caps have assumed that £10 million of assets are transferred to the retail subsidiary on 1 April 2006.

In Chapter 20 we explained that we allowed for £12.5 million (2003-04 prices, post-efficiency) of capital investment to establish a retail market and to separate non-household retail activities into a licensed subsidiary. Our provisional wholesale charge caps assume the split in investment that is shown in Table 35.29.

Table 35.29: Capital expenditure relating to the separation of retail activities (2003-04 prices)¹⁶

	2006-07	2007-08	2008-09	2009-10	Total
Total business separation capital expenditure	£5.0m	£5.0m	£1.2m	£1.2m	£12.5m
Retail subsidiary business separation capital expenditure	£2.8m	£2.8m	£0.7m	£0.7m	£7.0m
Wholesale business separation capital expenditure	£2.2m	£2.2m	£0.5m	£0.5m	£5.4m

¹⁴ Ofwat, RD 30/03, 'Measured/unmeasured tariff differential', annex page 10.

¹⁵ Scottish Executive, 'Paying for water services 2006-2010', Analysis of whether there are significant cross-subsidies between the different customer groups served by Scottish Water, Annex 2 Analysis of the WIC22 non-household revenue database, Stone & Webster Consultants Ltd, February 2005.

¹⁶ Numbers may not add due to rounding.

We also assumed that around £1 million¹⁷ each year of spending on capital maintenance relates to the non-household retail business. This increases the cash requirement of the retail business in each year.

In order to forecast the current cost depreciation charge for the retail subsidiary, we adopted the same approach as when we forecast depreciation for the vertically-integrated business. We assumed that all transferred assets are half way through their asset life.

We allocated all new retail assets to the short (5 year) asset life category. We allowed for the depreciation charge shown in Table 35.30. We assumed that they are added half way through the year. Finally we have had to assume that depreciation is revalued annually using the Construction Output Price Index (COPI) each year.

Table 35.30: Current cost depreciation charge (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Transferred assets	£2.0m	£2.0m	£1.1m	£0.0m
New assets (including capital maintenance)	£0.4m	£1.3m	£2.0m	£2.4m
Total	£2.4m	£3.4m	£3.0m	£2.5m

Financing costs

Scottish Water's retail subsidiary will have to pay a market cost of capital. It is likely that new entrants could complain about potential state aid if the retail subsidiary did not have to pay an appropriate market rate.

Ernst & Young LLP advised the Commissioner that market rates for the retail subsidiary may reasonably be:

- 12% return for equity; and
- LIBOR + 0.6% return for debt providers (LIBOR assumed to be 5%).

Ernst & Young LLP also advised the Commissioner that fixed assets transferred to the retail subsidiary should be assumed to be largely equity funded. We therefore assumed that the initial £10.1 million asset transfer to the retail subsidiary is entirely equity funded. Ernst & Young LLP also advised that working capital should mostly be funded by debt (around 80%).

We assumed that total working capital of the retail subsidiary is 25% of the total water and sewerage service industry primary revenue (based on the assumptions in the Ernst & Young report). We also assumed that the retail subsidiary would start life with £4 million of cash.

Our calculation of the retail gross margin is therefore based on our assumption that £69.4 million of debt and £22.4 million of equity is transferred to the retail subsidiary. We explain this in figure 35.3.

We calculated the retail margin by analysing all of the retail costs. Our analysis recognises that in some years the retail subsidiary would be cash negative. We have assumed that any such increase in borrowing is financed at market rates. Similarly, we have assumed that any cash surplus is used to pay down total outstanding debt. Such cash surpluses or deficits most likely arise because of timing differences. We fund maintenance over the life of the asset and only the financing costs of working capital. Other allowed for costs are likely to have associated cash flows. This is illustrated in Figure 35.4

We assumed that working capital is 25% of industry revenue in each year. We also assume that the retail subsidiary's cash requirement increases to £8 million as the market opens for competition. We outlined our investment assumptions earlier in the chapter. These assumptions lead to the financing costs set out in Table 35.31.

Table 35.31: Financing costs for the retail business¹⁸ (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Financing costs	£8.8m	£8.7m	£8.8m	£8.8m

¹⁷ Based on our analysis of the M tables.

¹⁸ Includes current cost working capital adjustment.

Figure 35.3: Asset transfer and financing assumptions

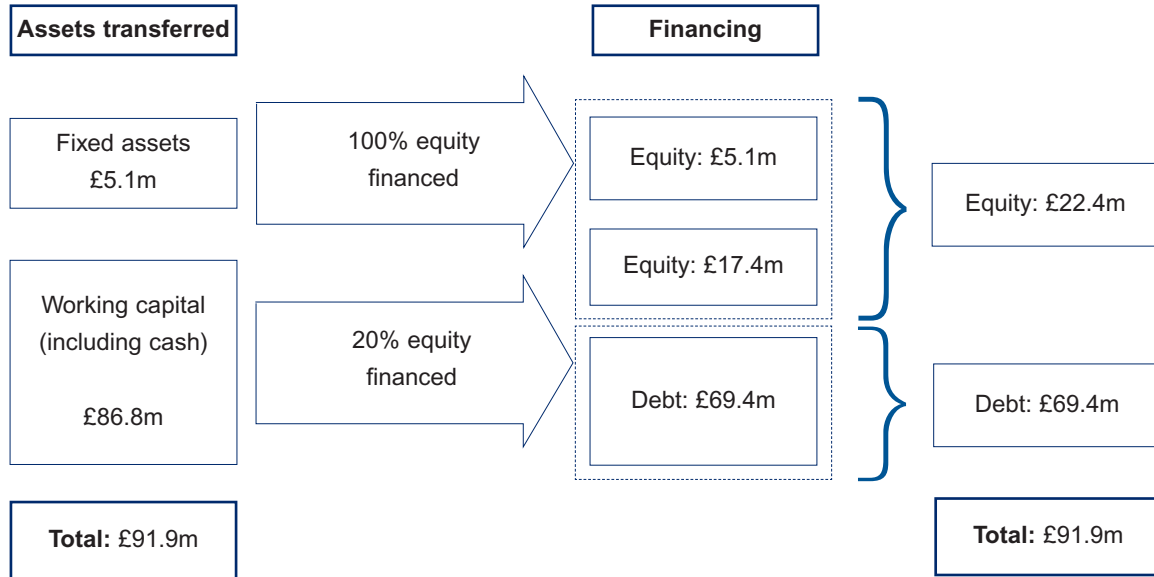
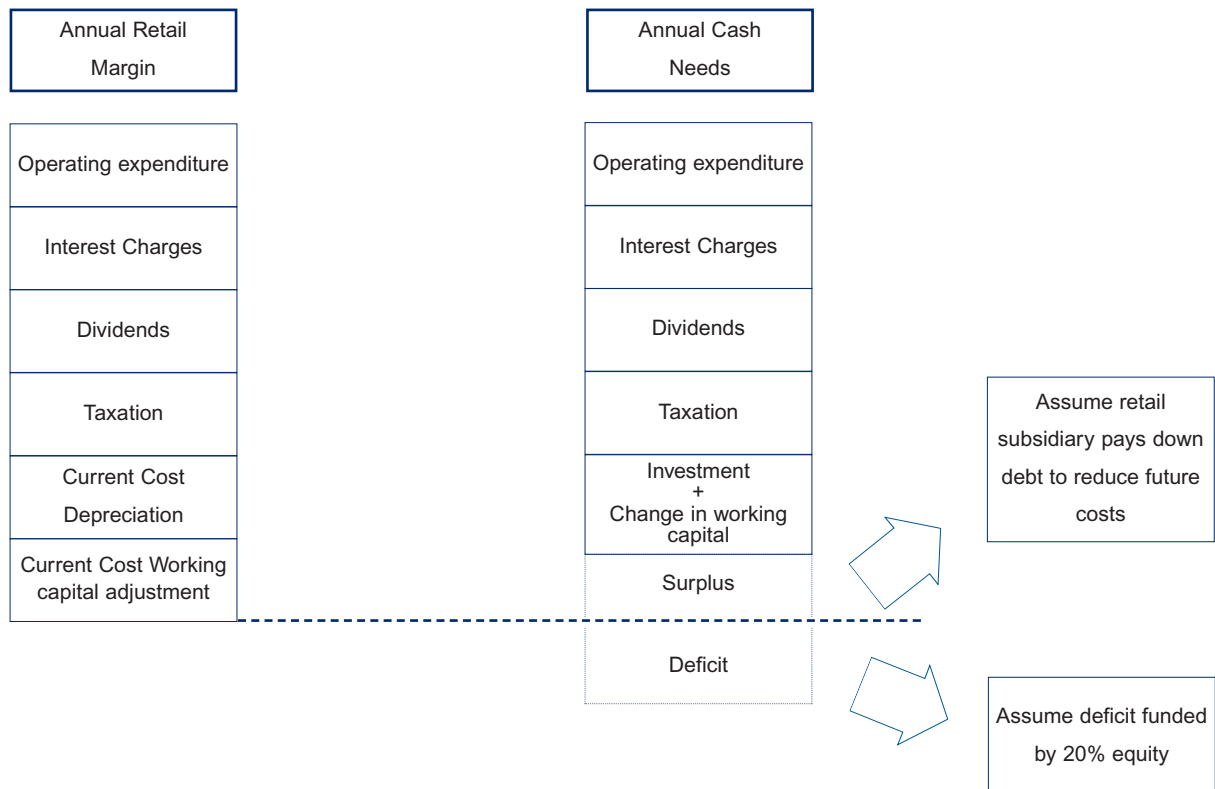


Figure 35.4: Calculation of annual financing requirement



Taxation

Our estimate of the revenues and costs of the retail subsidiary suggests that it will earn a profit and, as such, create a tax liability. We recognise that in 2006-07, Scottish Water as a whole (ie including its retail subsidiary) will not pay corporation tax. However, we consider that in setting the wholesale charge limit we must allow sufficient retail margin for the subsidiary to meet its tax liability. It is important that customers of the retail business pay the full costs of supplying non-household retail services. We have therefore allowed for the tax liability in the retail subsidiary when it is incurred and not when it is paid. We do not, however, fund deferred taxation.

We believe that the tax payable by the retail subsidiary that we have allowed for is consistent with our assumptions on the transfer of assets and our allowances for operating costs, financing costs and capital expenditure. We set out our allowance for the tax that the retail subsidiary would be liable to pay each year in Table 35.32.

Table 35.32: Allowance for the tax that the retail subsidiary will have to pay (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Taxation	£2.3m	£2.4m	£2.2m	£2.0m

We calculated the provisional retail gross margin shown in Table 35.33.

Table 35.33: Provisional retail margin (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Operating expenditure	£20.5m	£21.1m	£23.6m	£24.1m
Current cost depreciation	£2.4m	£3.4m	£3.0m	£2.5m
Financing costs	£8.8m	£8.7m	£8.8m	£8.8m
Taxation	£2.3m	£2.4m	£2.2m	£2.0m
Total	£34.0m	£35.5m	£37.7m	£37.4m

We expect to review this provisional retail gross margin in the light of the Minister's decisions on the transfer of assets and liabilities. If necessary, we plan to use an interim determination in the autumn of 2006 to adjust the wholesale charge cap.

We have had to make a series of high-level assumptions to calculate a retail margin. It is possible, perhaps even likely, that we will have over-estimated some costs and under-estimated others. We believe that any adjustment for the retail margin should take place at an aggregate level. It would be inappropriate to limit the operational flexibility of the retail subsidiary's management by defining too precisely the make-up of the overall retail cost base at this early stage in the introduction of the new framework.

We outlined in Table 35.33 the total revenue that we expect Scottish Water's retail subsidiary to receive from customers.

The provisional retail gross margin can be expressed as a percentage of this total revenue. This is shown in Table 35.34

Table 35.34: Retail and wholesale revenue (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Total revenue (Table 35.26)	£331.9m	£335.9m	£343.9m	£350.5m
Retail margin (Table 35.33)	£34.0m	£35.5m	£37.7m	£37.4m
Wholesale revenue	£297.9m	£300.4m	£306.2m	£313.1m
Retail margin as percentage of total revenue	10.2%	10.6%	11.0%	10.7%

Provisional wholesale charge caps

We explained that we set provisional wholesale charge caps by deducting our assessment of the provisional retail gross margin from the total allowed revenue each year. Although we expect to review our provisional wholesale caps in the light of the Ministers' decision on the transfer of assets and liabilities to the retail subsidiary, this will not impact on the total resources available. It will therefore not affect the bills that customers pay¹⁹.

Our provisional wholesale charge caps set limits on the amount that Scottish Water may charge to licensed retail service providers (including its own retail subsidiary). We want to allow Scottish Water flexibility in developing an appropriate wholesale charging framework²⁰. As such, we asked Scottish Water to develop wholesale tariffs as part of the charges scheme process for 2006-07. We expect these non-household wholesale charges to be consistent with the implied non-household wholesale revenue cap for 2005-06.

Additionally, we will require Scottish Water to have published its wholesale charges for the period from April 2008 by the autumn of 2007 (subject to annual inflation adjustment). In our view new contracts will need that information to decide whether to apply for licences.

We set out our calculation of allowed for primary revenue for the non-household wholesale business in Table 35.35

Table 35.35: Allowed primary revenue for wholesale business (outturn prices)

	2005-06	2006-07	2007-08	2008-09	2009-10
Total allowed revenue	£963.0m	£981.2m	£1,004.7m	£1,035.9m	£1,066.4m
Less: household revenue	£628.8m	£642.2m	£661.6m	£684.6m	£708.4m
Less: Secondary revenue	£11.5m	£11.8m	£12.1m	£12.4m	£12.7m
Less: non-household retail margin ²¹	£33.5m	£34.0m	£35.5m	£37.7m	£37.4m
Non-household wholesale primary revenue	£289.1m	£293.2m	£295.5m	£301.2m	£307.9m

We assumed that the wholesale customer base changes in line with the retail customer base. This is shown in Table 35.20.

¹⁹ Any potential small disadvantage to this retail subsidiary would be taken account of either in an interim determination or through the logging up (down) process.

²⁰ Scottish Water did not provide detailed information on its plans for wholesale tariffs in its second draft business plan.

²¹ For 2005-06, this has been estimated by assuming that it forms the same proportion of total non-household revenue (plus taps, troughs and building water) as in 2006-07.

We set out our calculation of non-household wholesale charge caps in Table 35.36. These only apply to primary services and we have therefore subtracted our assumed level of secondary revenue.

Table 35.36: Non-household wholesale charge limits (revenue figures in outturn prices)

	2006-07	2007-08	2008-09	2009-10
Previous year revenue	£289.1m	£293.2m	£295.5m	£301.2m
Change due to customer base changes	0.4%	0.2%	1.4%	0.9%
Revenue base for year	£290.4m	£293.8m	£299.6m	£304.0m
Allowed revenue	£293.2m	£295.5m	£301.2m	£307.9m
(Allowed revenue/ revenue base) minus 1	1.0%	0.6%	0.5%	1.3%
The K factor (subtract RPI)	-1.5%	-1.9%	-2.0%	-1.2%

Conclusions

In this chapter we explained how we calculated the revenue that we allowed Scottish Water to raise from its customers.

The charge limits we set are consistent with our allowed for level of revenue. The charge limits are consistent with:

- harmonisation of charges across Scotland;
- a continuing link between household charges and Council Tax bands;
- a new 25% discount on charges for customers who receive Council Tax relief; and
- rebalancing of £44 million between non-household and household customer revenue, achieved without any real increases and phased over the four-year regulatory control period.

We separately identified a provisional wholesale charge cap and retail charge caps. These limits will allow both businesses sufficient revenue to fund their efficient operation. We expect to review the wholesale charge cap in the light of the Minister's decision on the transfer of assets and liabilities to Scottish Water's retail subsidiary.

Chapter 36 explains how these charge limits will affect our standard customers.

Chapter 36:

The impact of charge caps on customers

Introduction

In the previous chapter we outlined the charge caps that will be applied for various groups of customers. In this chapter we explain how these charge caps will affect the bills that customers pay.

Scottish Water has around 2.3 million household customers and just over 120,000 non-household customers. Almost all household customers¹ pay on an unmeasured basis with reference to the Council Tax band of their property.

Non-household (and metered household) customers require a different mix of services from Scottish Water. Tariff changes will impact on their bills in different ways. While we cannot project the impact of tariff changes on the bills of all such customers, we are keen to ensure that both the process and the outcome of this final determination are as transparent as possible. We therefore use a series of 'standard' customers to illustrate the effects of charge caps on customers' bills.

The standard customers that we use are designed to be representative of the mix of services that customers might have. In this final determination, we have used the same standard customers that the Commissioner used in his draft determination. The Commissioner discussed his approach in detail in Chapter 12, Volume 7 of the draft determination.

The charge caps

In the previous chapter we explained that we set two sets of charge caps:

- provisional wholesale charge cap; and
- retail charge caps for a number of tariff baskets.

Each year, Scottish Water or its retail subsidiary² will be allowed to increase its prices in line with inflation (measured using the retail price index), plus the 'K' factor that we have set in this final determination. The charge caps we have set for household and non-household

customers are shown in Tables 36.1 and 36.2 respectively.

Table 36.1: Household charge caps (real)

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-0.5%	-0.5%
Household unmeasured wastewater	-0.5%	-0.5%	-0.5%	-0.5%
Standard household metered water connection (20mm)	-0.5%	-0.5%	-0.5%	-0.5%
Standard household metered waste water connection (20mm) (including surface water drainage)	-0.5%	-0.5%	-0.5%	-0.5%

Table 36.2: Non-household charge caps (real)

	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household unmeasured waste water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured waste water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household surface water drainage	-1.5%	-1.5%	-1.5%	-1.5%
Trade effluent	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household standard metered waste water connection (20mm)	-1.5%	-1.5%	-1.5%	-1.5%

We show the effects of the charge caps based on our assumptions of inflation in Table 36.3 and 36.4.

Table 36.3: Assumed nominal household charge caps³

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	2.0%	2.0%	2.0%	2.0%
Household unmeasured wastewater	2.0%	2.0%	2.0%	2.0%
Standard household metered water connection (20mm)	2.0%	2.0%	2.0%	2.0%
Standard household metered waste water connection (20mm) (including surface water drainage)	2.0%	2.0%	2.0%	2.0%

¹ Around 400 household customers have a meter and pay for their water and sewerage services on this basis.

² We intend to make it a licence condition that the retail subsidiary of Scottish Water is bound by the retail charge caps that are set out in Table 36.2.

³ Assumes retail price inflation is 2.5% in each year.

Table 36.4: Assumed nominal non-household charge caps⁴

	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	1.0%	1.0%	1.0%	1.0%
Non-household unmeasured waste water	1.0%	1.0%	1.0%	1.0%
Non-household measured water (with 25mm connection or greater)	1.0%	1.0%	1.0%	1.0%
Non-household measured waste water (with 25mm connection or greater)	1.0%	1.0%	1.0%	1.0%
Non-household surface water drainage	1.0%	1.0%	1.0%	1.0%
Trade effluent	1.0%	1.0%	1.0%	1.0%
Non-household standard metered water connection (20mm)	1.0%	1.0%	1.0%	1.0%
Non-household standard metered waste water connection (20mm)	1.0%	1.0%	1.0%	1.0%

These charge caps apply to the average of a basket of tariffs. There are specific rules about the balance of tariffs within each basket. Scottish Water is allowed to rebalance tariffs if it can demonstrate that a change in the balance of tariffs would be more cost reflective. Scottish Water may also rebalance tariffs if it is required to do so by ministerial guidance. Such a rebalancing of tariffs within a tariff basket could mean that some customers face an increase in their bills that is greater than the overall tariff basket charge cap.

Unmeasured household customers

Household customers pay an amount that depends on the Council Tax band of their property. It does not depend on their consumption of water or discharge of waste water.

We use the Band D charge because it is the reference point for Council Tax charging. It is higher than the average charge, which sits between Band B and Band C.

Table 36.5 shows the change in the Band D charge that is implied by our charge caps. This assumes that retail price inflation is in line with our assumption of 2.5%.

Table 36.5: Nominal Band D charge 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£163.26	£166.53	£169.86	£173.25	£176.72
Waste Water	£185.50	£188.19	£191.95	£195.79	£199.71
Total	£347.76	£354.72	£361.81	£369.05	£376.43

Table 36.6 shows the change in the average charge implied by our charge caps. Again, this assumes that RPI is in line with our forecast of 2.5%.

Table 36.6: Nominal average charge 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£137.30	£139.30	£142.48	£145.90	£149.39
Waste Water	£153.75	£155.82	£159.40	£163.28	£167.23
Total	£291.05	£295.12	£301.88	£309.17	£316.62

Measured household customers

Fewer than 1% of household customers have meters. These customers pay a fixed charge based on the size of their meter connection and a volumetric rate based on how much water they consume. All household metered water customers currently have a standard 20mm connection. This is the smallest connection available.

We demonstrate the effects of our charge caps on measured households using the 'large house' standard customer. This customer uses 110m³ of water a year, discharges 104m³ of sewage, and is in a Council Tax Band H property (the basis for surface water drainage charges).

The bill for our large house standard customer in 2005-06 is £652.85. Table 36.7 shows the change in the bill for the large house standard customer that is implied by our charge caps. Again, we assume that the increase in the retail price index each year is 2.5%.

⁴ Assumes retail price inflation is 2.5% in each year

Table 36.7: Large house standard customer nominal bills 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£231.46	£236.08	£240.81	£245.62	£250.53
Waste Water	£273.79	£279.27	£284.85	£290.55	£296.36
Surface Water Drainage	£147.60	£150.55	£153.56	£156.63	£159.77
Total	£652.85	£665.90	£679.22	£692.81	£706.66

Unmeasured non-household customers

Unmetered non-household customers pay for their water and sewerage service relative to the rateable value of their property. They pay two fixed charges for water, neither of which reflects their consumption:

- a minimum charge for access to the network; and
- an additional charge that is a proportion of their rateable value.

They pay three separate fixed charges for waste water:

- a minimum charge for accessing the network; and
- two charges that are a proportion of their rateable value - one covers waste water and the second covers surface water and roads drainage.

We illustrate the effect of our charge caps on unmeasured non-household customers with four separate standard customers. These are shown in Table 36.8.

Table 36.8: Standard unmeasured non-household customers

Customer name	Rateable value
Small newsagent/grocer	£200
Local hairdresser	£920
Sports club	£2,250
Supermarket	£30,000

Three separate tariff baskets affect unmeasured non-household customers. These are:

- non-household unmeasured water;
- non-household waste water; and
- non-household surface water drainage.

Table 36.9 shows the impact of the charge caps on unmeasured non-household standard customers' bills from 2005-06 to 2009-10. Again, RPI is assumed to be 2.5%.

Table 36.9: Unmeasured non-household standard customer nominal bills 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Small Newsagent/grocer					
Water	£141.55	£142.97	£144.40	£145.84	£147.30
Waste water	£155.18	£156.73	£158.30	£159.88	£161.48
Surface water drainage	£7.34	£7.41	£7.49	£7.56	£7.64
Total	£304.07	£307.11	£310.18	£313.28	£316.42
Local Hairdresser					
Water	£160.41	£162.02	£163.64	£165.27	£166.93
Waste water	£185.35	£187.20	£189.07	£190.96	£192.87
Surface water drainage	£33.76	£34.10	£34.44	£34.79	£35.13
Total	£379.53	£383.32	£387.15	£391.03	£394.94
Sports Club					
Water	£195.26	£197.21	£199.18	£201.18	£203.19
Waste water	£241.08	£243.49	£245.92	£248.38	£250.86
Surface water drainage	£82.58	£83.40	£84.23	£85.08	£85.93
Total	£518.91	£524.10	£529.34	£534.63	£539.98
Supermarket					
Water	£922.31	£931.53	£940.85	£950.26	£959.76
Waste water	£1,403.80	£1,417.84	£1,432.02	£1,446.34	£1,460.80
Surface water drainage	£1,101.00	£1,112.01	£1,123.13	£1,134.36	£1,145.71
Total	£3,427.11	£3,461.38	£3,495.99	£3,530.95	£3,566.26

The bills shown in Table 36.9 take no account of any better deals that might become available as competition develops in the market.

Measured non-household customers

Metered non-household customers pay a standing charge that depends on the size of their meter connection, and a volumetric charge based on how much water they consume. Non-household measured water customers with a standard 20mm connection are charged in the same way as metered household customers for water.

Larger meter connection sizes range from 25mm to 600mm. Annual water consumption up to 100,000m³ is charged at the standard 20mm volumetric rate. Customers who use more than 100,000m³ of water during the year receive a discount from the standard volumetric tariff for any consumption above the 100,000m³ threshold. A second increased discount applies above 250,000m³. Customers who commit in advance to using a minimum amount of water can obtain a larger discount on their consumption over 100,000m³ and 250,000m³.

Non-household waste water customers pay a fixed charge based on the size of their water meter connection and a volumetric rate based on an assumption that 95% of their water consumption is returned to sewer.

The surface water drainage charge for non-household customers, whether metered or unmetered, is based on the rateable value of their properties.

We illustrate the effects of our charge caps on measured non-household customers using 13 separate standard customers. These are set out in Table 36.10.

Table 36.10: Standard measured non-household customers

Name	Water		Waste water		
	Meters (no x size mm)	Volume (m ³)	Meters (no x size mm)	Volume (m ³)	Rateable value
Warehouse	1 x 20	10	1 x 20	9	£500
High school	1 x 25	2,000	1 x 25	1,900	£18,000
Hotel	1 x 50	15,000	1 x 50	14,250	£75,000
Convenience store	1 x 20	30	1 x 20	28.5	£5,000
Garage	1 x 20	100	1 x 20	95	£10,000
Large restaurant	1 x 20	500	1 x 20	475	£100,000
Large office	1 x 25	900	1 x 25	855	£750,000
Retail group	2 x 20 20 x 25 1 x 35	4,500	2 X 20 20 X 25 1 X 35	4,275	£1,700,000
Food manufacturer 1	2 x 25 1 x 80	50,000	2 x 25 1 x 80	47,500	£100,000
Food manufacturer 2	2 x 25 1 x 50 1 x 100	100,000	2 x 25 1 x 50 1 x 100	95,000	£260,000
Large manufacturer	1 x 150	175,000	1 x 150	166,250	£1,225,000
Brewers	2 x 25 1 x 100 1 x 150	600,000	2 x 25 1 x 100 1 x 150	150,000	£500,000

The bills of measured non-household customers are affected by five separate tariff baskets. They are:

- non-household metered water [20mm];
- non-household metered waste water [20mm];
- measured water [with 25mm connection or greater];
- measured waste water [with 25mm connection or greater]; and
- non-household surface water drainage.

Table 36.11 shows the impact of our charge caps on measured non-household standard customers' bills from 2005-06 to 2009-10, assuming that RPI is 2.5%.

Table 36.11: Measured non-household standard customer nominal bills 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Warehouse					
Water	£142.73	£144.16	£145.60	£147.05	£148.53
Waste water	£145.30	£146.76	£148.22	£149.70	£151.20
Surface water drainage	£18.35	£18.53	£18.72	£18.91	£19.10
Total	£306.38	£309.45	£312.54	£315.67	£318.82
High School					
Water	£1,771.00	£1,788.71	£1,806.60	£1,824.66	£1,842.91
Waste water	£2,557.70	£2,583.28	£2,609.11	£2,635.20	£2,661.55
Surface water drainage	£660.60	£667.21	£673.88	£680.62	£687.42
Total	£4,989.30	£5,039.19	£5,089.58	£5,140.48	£5,191.89
Hotel					
Water	£12,837.00	£12,965.37	£13,095.02	£13,225.97	£13,358.23
Waste water	£18,737.25	£18,924.62	£19,113.87	£19,305.01	£19,498.06
Surface water drainage	£2,752.50	£2,780.03	£2,807.83	£2,835.90	£2,864.26
Total	£34,326.75	£34,670.02	£35,016.72	£35,366.88	£35,720.55
Convenience Store					
Water	£175.30	£177.05	£178.82	£180.61	£182.41
Waste water	£186.74	£188.61	£190.49	£192.40	£194.32
Surface water drainage	£183.50	£185.34	£187.19	£189.06	£190.95
Total	£545.53	£550.99	£556.50	£562.06	£567.69
Garage					
Water	£224.44	£226.68	£228.95	£231.24	£233.55
Waste water	£263.41	£266.05	£268.71	£271.40	£274.11
Surface water drainage	£367.00	£370.67	£374.38	£378.12	£381.90
Total	£854.85	£863.40	£872.03	£880.75	£889.56
Large Restaurant					
Water	£505.24	£510.29	£515.39	£520.54	£525.75
Waste water	£701.55	£708.57	£715.65	£722.81	£730.04
Surface water drainage	£3,670.00	£3,706.70	£3,743.77	£3,781.20	£3,819.02
Total	£4,876.79	£4,925.56	£4,974.81	£5,024.56	£5,074.81
Large Office					
Water	£998.80	£1,008.79	£1,018.88	£1,029.06	£1,039.36
Waste water	£1,352.82	£1,366.34	£1,380.01	£1,393.81	£1,407.74
Surface water drainage	£27,525.00	£27,800.25	£28,078.25	£28,359.04	£28,642.63
Total	£29,876.62	£30,175.38	£30,477.13	£30,781.91	£31,089.73
Retail group					
Water	£11,845.47	£11,963.92	£12,083.56	£12,204.40	£12,326.44
Waste water	£13,614.83	£13,750.98	£13,888.49	£14,027.38	£14,167.65
Surface water drainage	£62,390.00	£63,013.90	£63,644.04	£64,280.48	£64,923.28
Total	£87,850.30	£88,728.81	£89,616.09	£90,512.25	£91,417.38

	2005-06	2006-07	2007-08	2008-09	2009-10
Food Manufacturer 1					
Water	£42,545.00	£42,970.45	£43,400.15	£43,834.16	£44,272.50
Waste water	£62,212.50	£62,834.63	£63,462.97	£64,097.60	£64,738.58
Surface water drainage	£3,670.00	£3,706.70	£3,743.77	£3,781.20	£3,819.02
Total	£108,427.50	£109,511.78	£110,606.89	£111,712.96	£112,830.09
Food Manufacturer 2					
Water	£87,397.00	£88,270.97	£89,153.68	£90,045.22	£90,945.67
Waste water	£126,732.00	£127,999.32	£129,279.31	£130,572.11	£131,877.83
Surface water drainage	£9,542.00	£9,637.42	£9,733.79	£9,831.13	£9,929.44
Total	£223,671.00	£225,907.71	£228,166.79	£230,448.45	£232,752.94
Large Manufacturer					
Water	£144,094.00	£145,534.94	£146,990.29	£148,460.19	£149,944.79
Waste water	£232,580.25	£234,906.05	£237,255.11	£239,627.66	£242,023.94
Surface water drainage	£44,957.50	£45,407.08	£45,861.15	£46,319.76	£46,782.95
Total	£421,631.75	£425,848.07	£430,106.55	£434,407.61	£438,751.69
Brewers					
Water	£331,984.00	£335,303.84	£338,656.88	£342,043.45	£345,463.88
Waste water	£228,734.00	£231,021.34	£233,331.55	£235,664.87	£238,021.52
Surface water drainage	£18,350.00	£18,533.50	£18,718.84	£18,906.02	£19,095.08
Total	£579,068.00	£584,858.68	£590,707.27	£596,614.34	£602,580.48

Trade effluent

Trade effluent customers pay an annual fixed charge on the basis of expected discharge of effluent and a variable rate based on the actual volume and strength of the effluent discharged.

Scottish Water uses the Mogden formula to calculate charges for trade effluent. In simple terms, the Mogden formula has four variables:

- R (Reception) - this part of the formula is designed to cover the cost of the waste water system. The charge is in direct proportion to the volume of the discharge.
- V (Volumetric costs) - this part of the formula covers costs for preliminary and primary treatment. It takes account of the amount of suspended solids in the discharge.

- S (Solids costs) - this part of the formula covers costs for treating the sludge that results from primary treatment. It takes account of suspended solids in the discharge.
- B (Biological costs) - this part of the formula covers costs for secondary treatment. It takes account of the organic load in the discharge.

The basic Mogden formula is: $\text{Charge} = R + V + \alpha S + \beta B$.
The formula is widely used in Britain and internationally.

The price of trade effluent will vary depending on the type of discharge. It will also vary depending on the sewerage company's prices for each of the four elements of trade effluent collection and treatment.

Scottish Water uses two derivatives of the basic Mogden formula to assess the standing charge and the volumetric charge.

To assess the volumetric charge, Scottish Water uses the following formula:

$$C_o = [R_o + V_o + B_o \times (O_t/O_s) + S_o \times (S_t/S_s)] \times \text{AVD}$$

Where:

R_o = reception charge (pence per cubic metre)

V_o = volumetric charge (pence per cubic metre)

B_o = biological/secondary treatment charge (pence per cubic metre)

S_o = sludge/solid treatment charge (pence per cubic metre)

S_s = average total suspended solids for the Scottish sewerage system

Scottish Average Sewerage System

O_s = average settled chemical oxygen demand (COD) for the Scottish sewerage system

S_s = average total suspended solids for the Scottish sewerage system

AVD = Actual volume discharged

O_t = fixed strength of trade effluent discharged

S_t = fixed strength of trade effluent discharged

The formula assesses the volumetric charge based on the actual volume and strength of the trade effluent that is discharged. R_o , V_o , B_o and S_o are all charge factors (pence per cubic metre) set by Scottish Water. The factor O_t/O_s reflects the relative COD or biological treatment needed by the trade effluent in comparison with the system average.

The factor S_t/S_s reflects the discharged trade effluent's required treatment of solids relative to the system average.

Scottish Water assesses the standing charge using the following derivative of the Mogden formula:

$$C_a = [\text{CDV} \times (R_a + V_a) + (B_a \times \text{sBODI}) + (S_a \times \text{TSSI})] \times 365$$

Where:

R_a = reception charge (pence per cubic metre per day)

V_a = volumetric/primary charge (pence per cubic metre per day)

B_a = biological/secondary capacity charge (pence per kilogram of load per day)

S_a = sludge/solid capacity charge (pence per kilogram of load per day)

CDV = consented daily volume according to the trade effluent consent

sBODI = settled biochemical oxygen demand load according to the trade effluent consent

TSSI = total suspended solids load according to the trade effluent consent

It is more difficult to define standard trade effluent customers than it is to define water customers or customers who discharge standard-strength sewage. There are just over 2,000 customers in Scotland who have trade effluent agreements. Scottish Water uses 31 different categories to group these customers and their size can range from a small garage to a large petrochemical firm.

In the light of this, in developing standard customers for trade effluent we are not aiming to represent all trade effluent customers. However, we hope to indicate the types of industries that have trade effluent agreements,

and to show different varieties of strength and volume and different sizes of customer.

We use six standard customers for trade effluent. These are shown in Table 36.12.

Table 36.12: Trade effluent standard customers

Name	Volume		Load		Average Strengths	
	Annual	Daily	Total suspended solids	Biological oxygen demand	Total suspended solids	Settled chemical oxygen demand
Bakery	200m ³	0.55m ³	0.5kg/day	0.75kg/day	575mg/l	1,600mg/l
Clothing manufacturer	12,000m ³	32.9m ³	1kg/day	1kg/day	20mg/l	300mg/l
Abattoir	90,000m ³	246.6m ³	150kg/day	250kg/day	600mg/l	1,500mg/l
Electronics business	550,000m ³	1,507m ³	15kg/day	50kg/day	10mg/l	75mg/l
Printers	10,000m ³	27.4m ³	5kg/day	40kg/day	100mg/l	2,500mg/l
Distillery	150,000m ³	411.0m ³	7kg/day	55kg/day	15mg/l	200mg/l

Trade effluent customers are impacted only by the charge cap on our trade effluent tariff basket.

Table 36.13 shows the effect on total bills of our charge caps on trade effluent prices. We assume that retail price inflation is 2.5%.

Table 36.13: Bills for trade effluent standard customers (nominal) 2005-06 to 2009-10

	2005-06	2006-07	2007-08	2008-09	2009-10
Bakery	£249.24	£297.18	£300.15	£303.15	£306.19
Clothing Manufacturer	£5,560.53	£5,616.13	£5,672.29	£5,729.02	£5,786.31
Abattoir	£118,796.65	£119,984.61	£121,184.46	£122,396.31	£123,620.27
Electronics business	£211,029.12	£213,139.41	£215,270.81	£217,423.51	£219,597.75
Printers	£15,240.28	£15,392.69	£15,546.61	£15,702.08	£15,859.10
Distillery	£67,163.59	£67,835.23	£68,513.58	£69,198.72	£69,890.70

If we assume that tariffs in England and Wales change in line with the charge caps that Ofwat has set (and inflation is 2.5%), we can estimate the bill that will be paid by our standard customers in England and Wales in 2009-10, as shown in Table 36.14.

Table 36.14: Effects on trade effluent standard customers' bills 2005-06 to 2009-10

Customer name	Scottish Water 2009-10 projected	Lowest England and Wales (2009-10)	Highest England and Wales (2009-10)	Median England and Wales (2009-10)	Average England and Wales (2009-10)
Bakery	£306.19	£191.68	£798.61	£311.45	£368.89
Clothing manufacturer	£5,786.31	£3,711.87	£19,129.64	£8,755.60	£9,500.60
Abattoir	£123,620.27	£80,060.08	£50,127.69	£22,237.66	£53,151.40
Electronics business	£219,597.75	£114,933.05	£705,613.13	£280,686.09	£355,420.81
Printers	£15,859.10	£10,547.16	£46,155.38	£15,999.20	£20,494.01
Distillery	£69,890.70	£41,232.13	£218,272.91	£82,427.68	£102,633.48

Overall effects on bills of charge caps

Table 36.15 summarises the impact of our charge caps on each of our standard customers.

Table 36.15: Effects on all standard customers' bills 2005-06 to 2009-10

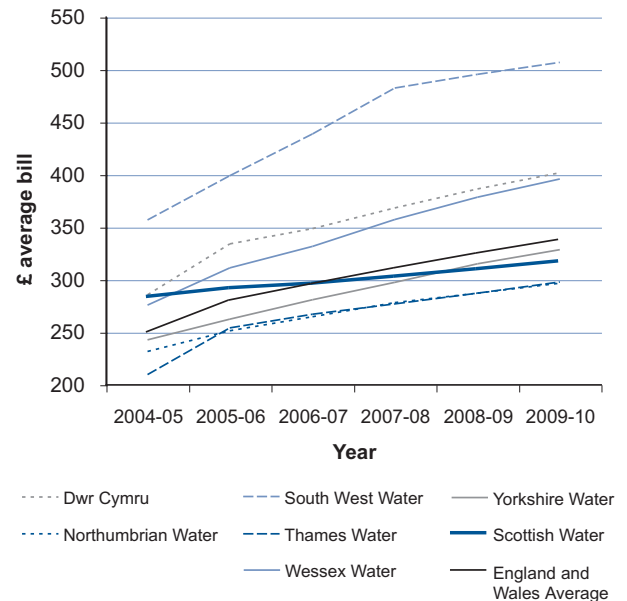
Customer name	Customer type	Total bill 2005-06	Nominal bill 2009-10	% change in bill
Band D unmeasured household	Unmeasured household	£347.76	£376.43	8.2%
Large house	Measured household	£652.85	£706.66	8.2%
Small newsagent/grocer	Unmeasured non-household	£304.07	£316.42	4.1%
Local hairdresser	Unmeasured non-household	£379.53	£394.94	4.1%
Sports club	Unmeasured non-household	£518.91	£539.98	4.1%
Supermarket	Unmeasured non-household	£3,427.11	£3,566.26	4.1%
Warehouse	Measured non-household	£306.38	£318.82	4.1%
High school	Measured non-household	£4,989.30	£5,191.89	4.1%
Hotel	Measured non-household	£34,326.75	£35,720.55	4.1%
Convenience store	Measured non-household	£545.53	£567.69	4.1%
Garage	Measured non-household	£854.85	£889.56	4.1%
Large restaurant	Measured non-household	£4,876.79	£5,074.81	4.1%
Large office	Measured non-household	£29,876.62	£31,089.73	4.1%
Retail group	Measured non-household	£87,850.30	£91,417.38	4.1%
Food manufacturer 1	Measured non-household	£108,427.50	£112,830.09	4.1%
Food manufacturer 2	Measured non-household	£223,671.00	£232,752.94	4.1%
Large manufacturer	Measured non-household	£421,631.75	£438,751.69	4.1%
Brewers	Measured non-household	£579,068.00	£602,580.48	4.1%
Bakery	Trade effluent	£294.24	£306.19	4.1%
Clothing manufacturer	Trade effluent	£5,560.53	£5,786.31	4.1%
Abattoir	Trade effluent	£118,796.65	£123,620.27	4.1%
Electronics business	Trade effluent	£211,029.12	£219,597.75	4.1%
Printers	Trade effluent	£15,240.28	£15,859.10	4.1%
Distillery	Trade effluent	£67,163.59	£69,890.70	4.1%

Conclusion

In this chapter we have explained the effects that our charge caps will have on standard customers.

We can project the average household charge for 2006-10 for selected water and sewerage companies in England and Wales and compare this to Scottish Water's average household bill. This comparison is shown in Figure 36.1.

Figure 36.1: Comparison of household bills in Scotland and England and Wales⁵



As Figure 36.1 shows, Scottish Water should have one of the lowest household bills in 2009-10. Customers in Scotland are seeing the benefits in their bills of being served by a water and sewerage supplier that has access to a public sector cost of capital.

An important factor in achieving lower bills to customers in 2009-10 has been the improvements that Scottish Water has made to its relative efficiency. We trust that Scottish Water will build on this improvement and outperform the assumptions we made in setting charge caps for 2006-10.

⁵ Figure 36.1 shows the companies with the most expensive and cheapest household bills in England and Wales. We also show average household bills in Wales and the two most efficient companies (in terms of operating costs) - Yorkshire Water and Wessex Water

Chapter 37:

Prospects for charges in 2010-14

Introduction

In this chapter we outline the prospects for customer charges at the next Strategic Review of Charges, which is likely to cover the period 2010-14.

Prices increased dramatically in the period between 1996 and 2004. However, during the last two years of the 2002-06 regulatory control period real price increases have been much more modest.

In this determination we have examined the scope for Scottish Water to reduce its costs further and to improve its level of service to customers. We have adopted the same approach to assessing the scope for improvement as Ofwat adopts. As a result, Scottish Water has the same opportunity to outperform the targets we have set as a company south of the border has to outperform Ofwat's price determination. We have developed incentive-based regulation to ensure that Scottish Water faces a consistent hard budgetary constraint, but that there is a mechanism to adjust prices if management faces cost pressures that are outside their control.

We believe that by 2010 Scottish Water could have further narrowed the gap in operating cost and capital efficiency between itself and the companies in England and Wales. However, it is still likely that in the 2010-14 regulatory control period Scottish Water will have some scope to improve both its relative and absolute efficiency further.

Prospects for prices

In the 2006-10 regulatory control period, no group of non-household customers that is currently paying tariffs that are within Scottish Water's charges scheme will face a real increase in the charges they pay. Similarly, all household customers (except second home owners and some higher-banded households that benefitted from the Transitional Relief Scheme) will see a reduction in their charges in real terms.

We have set out indicative price caps for the period 2010-14. At this time we believe that customers could expect these charges to increase broadly in line with retail price inflation.

The indicative price caps are set out in Table 37.1.

Table 37.1: Indicative price caps for 2010-14

	2010-11	2011-12	2012-13	2013-14
K factor ¹	-0.7%	-0.7%	-0.7%	-0.7%

These charge caps have assumed that:

- Scottish Water reaches, but does not beat, its targets for the 2006-10 regulatory control period;
- there is an investment programme of £1,800 million in 2003-04 prices;
- capital inflation is 2.5% a year (2010-14);
- there is no change in the key financial ratios; and
- public expenditure of £182 million a year is available.

The actual price caps for 2010-14 will depend on Scottish Water's performance in the forthcoming regulatory control period and on the decisions of the Scottish Ministers with regard to their investment objectives and the level of public expenditure that they are prepared to make available.

We have modelled a number of different scenarios. These are summarised in Table 37.2.

Table 37.2: Future price caps scenarios

Level of investment (2003-04 prices)	<ul style="list-style-type: none"> • £1,700 million • £1,800 million • £1,900 million • £2,000 million • £2,100 million • £2,200 million
Public expenditure	<ul style="list-style-type: none"> • Limited to £182 million a year nominal • Unlimited
Change in targeted key financial ratios	<ul style="list-style-type: none"> • No change • One or more ratios may fail
Capital expenditure inflation	<ul style="list-style-type: none"> • 3.0% • 2.5%

¹ Adjustment in tariff basket income relative to the rate of retail price inflation.

Prospects for investment

The Quality and Standards consultation document, issued by the Scottish Executive, highlighted the need for continuing investment in the water industry in Scotland. In this final determination we considered carefully the level of investment that is required to deliver both the 'essential' and the 'desirable' objectives set out by Ministers. Our move towards the regulatory capital value method of setting prices has ensured that in the 2010-14 regulatory control period, customers will meet the costs of the level of service they receive.

The main drivers of investment in the 2010-14 regulatory control period are likely to include:

- improving customer service;
- the Water Framework Directive;
- lead standards;
- revisions to the Bathing Waters Directive;
- disposal of sludge; and
- better management of drainage and sewerage systems.

It is not clear what level of investment is likely to be required. We have therefore modelled a range of scenarios from £1,700 million to £2,200 million in 2003-04 prices. We set out our results in Tables 37.3 and 37.4. Table 37.3 assumes that capital inflation is 2.5%, in line with retail price inflation. Table 37.4 assumes that capital expenditure inflation runs at 3%. The same charge cap is applied in each year of the regulatory control period.

Table 37.3: Indicative real annual charge caps for 2010-14 (COPI = 2.5%)

Investment in 2003-04 prices ²	Does not comply with funds from operations ratio		Compliant with all key financial ratios	
	No limit	Public expenditure fixed at £182 million a year	No limit	Public expenditure fixed at £182 million a year
£1,700 million	-4.9%	-4.9%	-1.1%	-1.1%
£1,800 million	-4.7%	-4.7%	-0.7%	-0.7%
£1,900 million	-4.4%	-4.3%	-0.4%	-0.4%
£2,000 million	-4.2%	-3.0%	-0.1%	-0.1%
£2,100 million	-4.0%	-1.5%	0.2%	0.2%
£2,200 million	-3.8%	0.0%	0.5%	0.5%

² Percentages rounded to one decimal place.

Table 37.4: Indicative real annual charge caps for 2010-14 (COPI = 3.0%)

Investment in 2003-04 prices	Does not comply with funds from operations ratio		Compliant with all key financial ratios	
	No limit	Public expenditure fixed at £182 million a year	No limit	Public expenditure fixed at £182 million a year
£1,700 million	-4.8%	-4.8%	-1.0%	-1.0%
£1,800 million	-4.6%	-4.6%	-0.7%	-0.7%
£1,900 million	-4.4%	-4.0%	-0.4%	-0.4%
£2,000 million	-4.2%	-2.6%	0.0%	0.0%
£2,100 million	-4.0%	-1.1%	0.3%	0.3%
£2,200 million	-3.8%	0.4%	0.6%	0.6%

The challenges ahead

There are considerable challenges during the current regulatory control period. These include delivering further improvements in operating cost and capital expenditure efficiency; a large investment programme and material improvements in customer service standards measured by OPA. The introduction of the new framework for competition in non-household retail services also represents a major challenge for Scottish Water and its new retail subsidiary. Scottish Water will need to develop an appropriate relationship with retail new entrants, who will, in effect, represent a small number of demanding customers.

The challenges for Scottish Water in the next regulatory control period (which is likely to run from 2010 to 2014) will be similar in some ways. It is always more difficult to close the last elements of any efficiency gap. The focus of the investment programme may well have changed slightly; greater attention will have to be paid to understanding the condition and performance of the underground infrastructure to ensure that customers receive a reliable water supply. This will require a much greater reliance on performance information than has previously been the case. This information takes time to collect and interpret so it is important that the management of the industry allocates sufficient resources to this now.

Greater efficiency

Our expectation is that Scottish Water will close a further 50% of the gap between its own performance and that of the frontier companies in England and Wales. In its final determination, Ofwat noted that it believed that the scope for improvement in the frontier companies was 0.8% (water service) to 1.0% (sewerage service) a year. Ofwat's 2004 final determination required the frontier companies south of the border to improve their performance by 0.3% (water service) to 0.5% (sewerage service) a year. Table 37.5 illustrates the likely efficiency gap between Scottish Water and the frontier companies in 2010.

Table 37.5: Analysis of remaining operating expenditure efficiency gap in 2009-10

Total outperformance of Ofwat target by frontier companies	% cost reduction needed to match comparator companies, depending on extent of gap closure by Scottish Water						
	50% gap closure	60% gap closure	70% gap closure	80% gap closure	90% gap closure	100% gap closure	110% gap closure
0%	12%	9%	7%	5%	3%	0%	-3%
5%	16%	14%	12%	10%	7%	5%	2%
10%	20%	19%	17%	14%	12%	10%	8%

The largest single threat to the water industry surviving in the public sector is its inefficiency. It is therefore of the highest priority to continue to build on the substantial progress from the 2002-06 period.

Retail competition

Retail competition will offer a choice to most non-household customers in Scotland from 2008. This is likely to lead to a quite marked improvement in customer service and almost certainly to more flexibility in methods of payment. It may even lead to some limited reductions in bills for some customers.

This need not threaten Scottish Water. If customer service is improved and if wholesale tariffs are made broadly cost reflective, then the impact on Scottish Water's total revenues will be minimal. Scottish Water's retail subsidiary will have to ensure that it maintains as flexible a cost base as possible. In particular, it would seem prudent to avoid increasing its proportion of fixed costs.

Conclusion

We believe that this final determination for 2006-10 should reassure customers that price stability is not being achieved at the cost of future large increases in bills. There should be no need for large real increases in water and sewerage bills unless there is a further increase in the investment programme.

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