

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

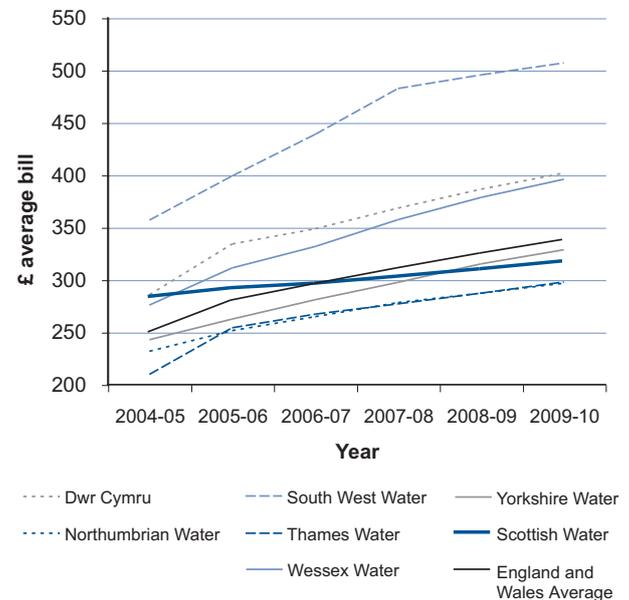
	2006-07	2007-08	2008-09	2009-10
Non-household unmeasured water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household unmeasured waste water	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured water (with 25mm connection or greater)	-1.5%	-1.5%	-1.5%	-1.5%
Non-household measured waste water (with 25mm connection or greater)	-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

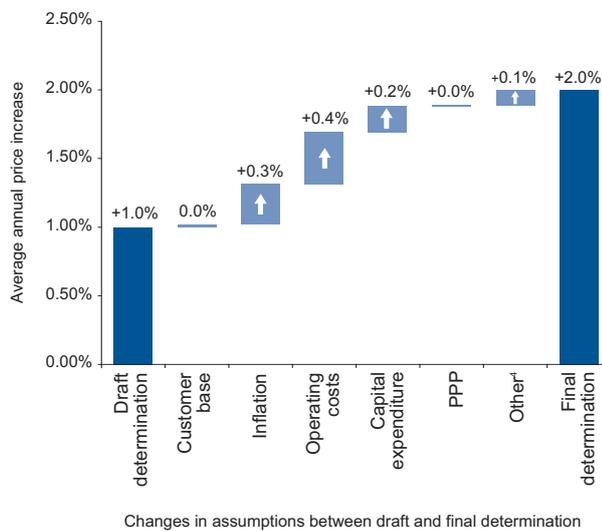
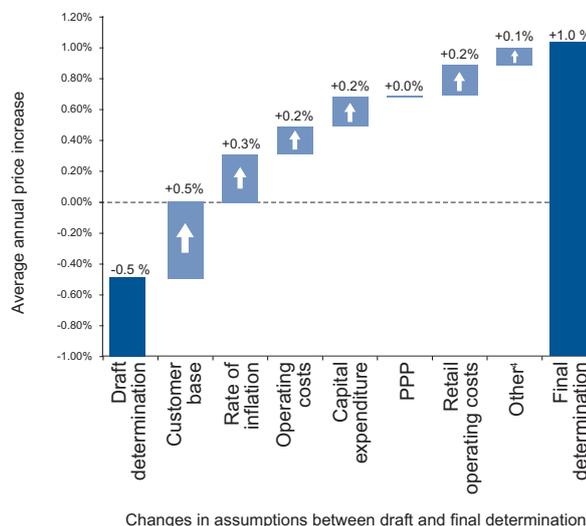


Figure 3 outlines the impact of our decisions on the annual increase in average non-household bills in the 2006-10 regulatory control period.

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

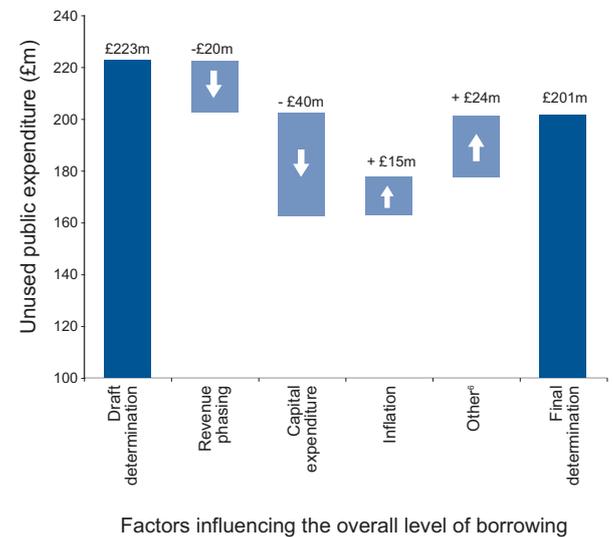
Financial ratio	Targeted value
Cash interest cover	Around 3 times
Adjusted cash interest cover	Around 1.6 times
Funds from operations: debt	Greater than 13%
Retained cash flow: debt	Greater than 7%
Gearing	Less than 65%

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.

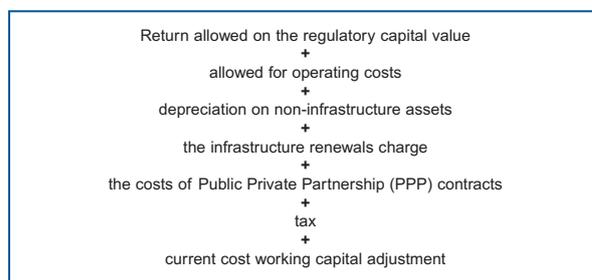
⁹ A full discussion of interim determinations and logging up and down is available in Volume 7, Chapters 6 and 7 of the Commission's draft determination. See also Appendix 11 of the draft determination.

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 unleveraged 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.

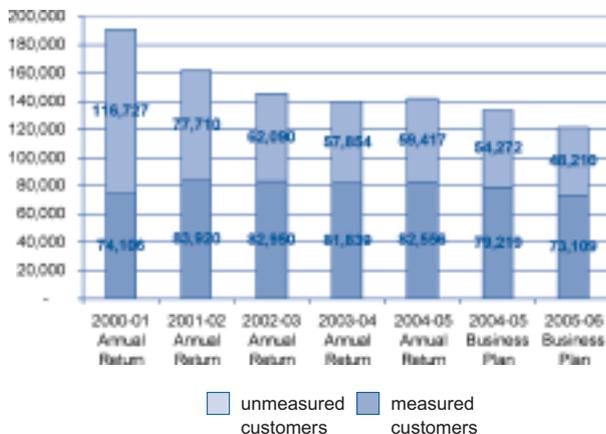
Figure 6: Non-household customer numbers 2000-01 to 2005-06

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)

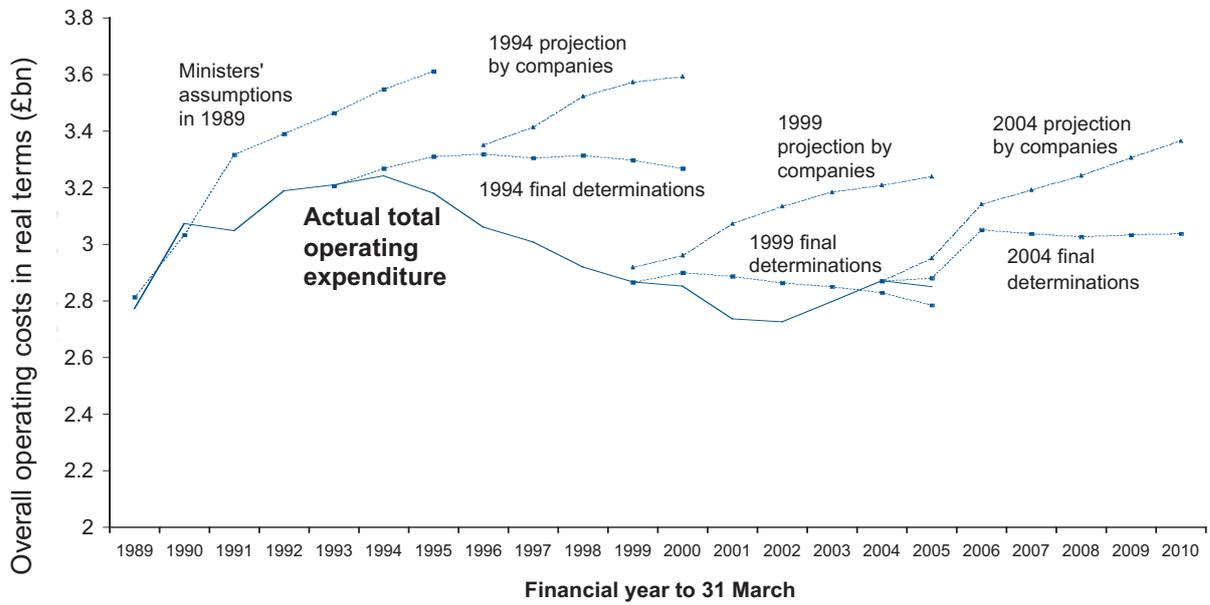
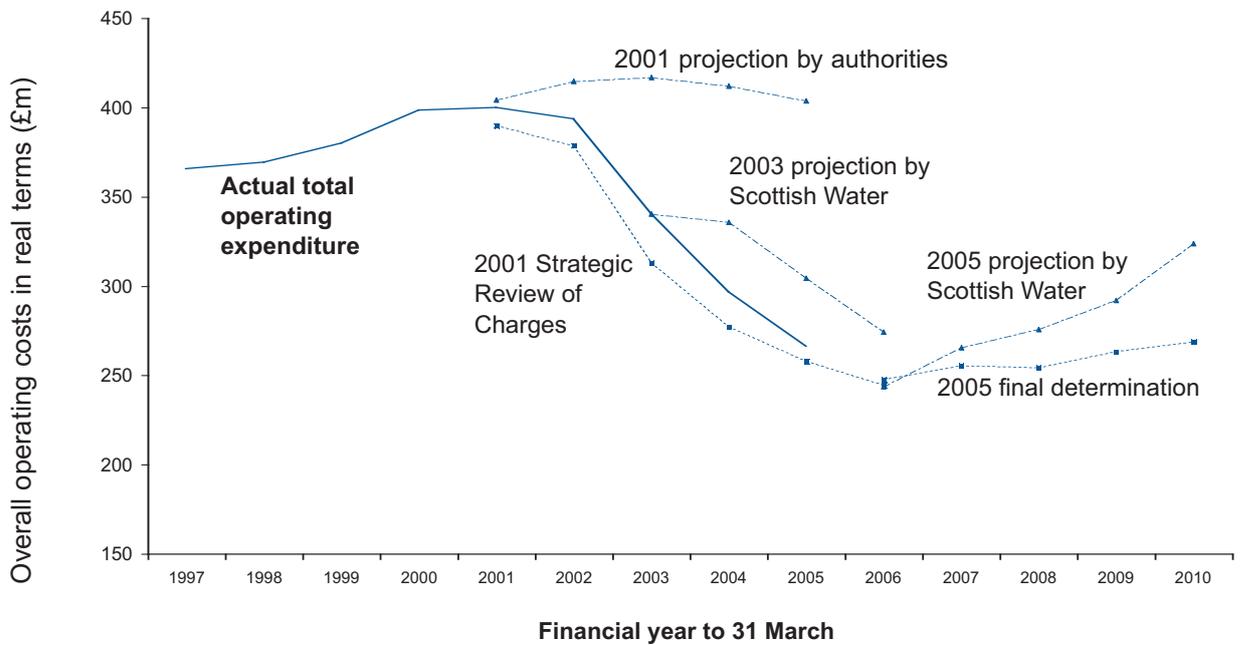


Figure 8: Performance against operating cost targets in Scotland since 2001 (2003-04 prices)



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

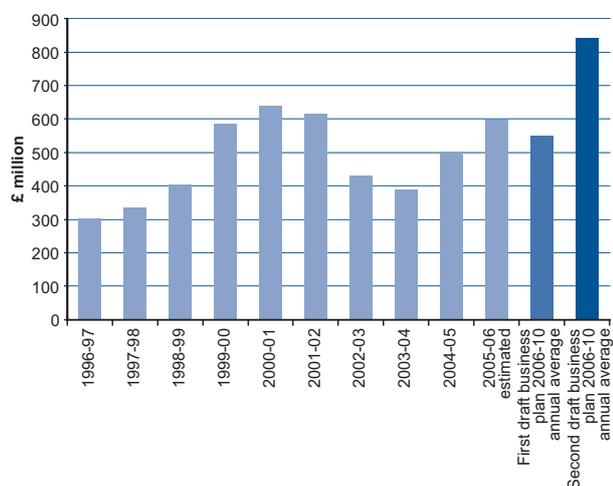
Scottish Water's second draft business plan (April 2005)³³

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

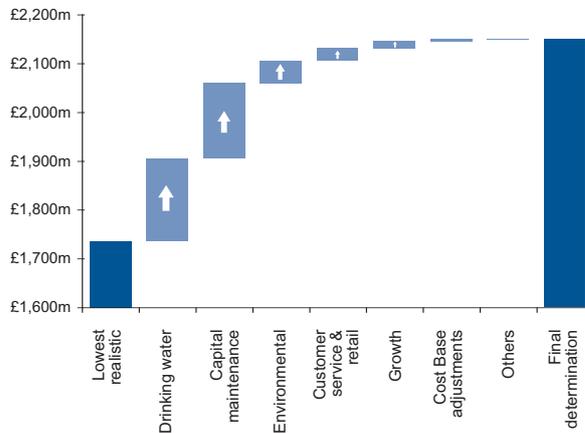
Scottish Executive's consultation, *Connecting to the system*). In our view, Scottish Water has significant scope to improve the efficiency of its procurement of capital expenditure. We concluded that the scope for efficiency is at the top end of the range identified by the Commissioner. We therefore 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 UID types 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 UID types that Scottish Water has to deliver. We accept Scottish Water's representation that our allowance for addressing UID types should take account of the mix of UID types. We have analysed the overflow UID types and the PPP UID types 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 UID types by driver (2003-04 prices)

UID type	Number of UID types	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 UID types 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.

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