

# The Strategic Review of Charges 2006-10: The draft determination

Setting charge caps

volume **7**

**WATER INDUSTRY  
COMMISSIONER  
FOR SCOTLAND**



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# Executive summary

## Introduction

This volume sets out our preliminary views on the revenue required by Scottish Water for the 2006-10 regulatory control period. It also sets out the impact of this level of revenue on customers' charges. We explain in detail how we have set both the required level of revenue and the corresponding charge caps. We also describe the assumptions we have used in our financial modelling.

We have set these caps at a level which ensures that Scottish Water's revenue is sufficient to meet the expenditure required for the effective exercise of its core functions. At the same time the charges are set no higher than is necessary to ensure that if Scottish Water were to perform in line with the assumptions in this draft determination, it could comply with all of the same cash-based financial ratios that Ofwat used for the companies in England and Wales in its 2004 final determination<sup>1</sup>. This ensures that the interests of both current and future customers have been taken into account.

One of the key issues that we address in this volume is the impact of the separation of retail activities for non-household customers<sup>2</sup>. We explain how we have set appropriate charge caps for both the wholesale and retail activities.

Finally, we consider the impact of the proposed charge caps on customers and the prospects for future charges.

## Financial modelling

The Ministerial Guidance which we received in February 2005 required us to ensure that the charges we set for this regulatory control period would not disadvantage future customers. Ministers also wanted Scottish Water's financial strength to be improved, if possible, over the 2006-10 regulatory control period. We have adopted the same financial ratios that Ofwat used to assess the financial sustainability of the water industry south of the border.

The financial ratios that we have used are summarised in Table 1.

**Table 1: Financial ratios used in this draft 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 cashflow: debt	Greater than 7%
Gearing	Less than 65%

We have focused on the cash-based financial ratios. However, we have ensured that the debt to regulatory capital value (RCV)<sup>3</sup> ratio improves over the regulatory control period.

## Development of the model

We developed the model using our own in-house staff. The model has been subject to rigorous internal analysis to ensure that the results are consistent with our expectations when inputting test information. We also asked Ernst & Young LLP to review both the initial and final versions of the financial model.

## Assumptions in the model

In this draft determination we have used two indices to take account of cost inflation, namely:

- the consumer price index (CPI) for all non-asset costs; and
- the construction output price index (COPI), to assess the impact of increases in prices on investments.

## CPI

We believe that the CPI is an appropriate measure of inflation for non-capital goods costs. The CPI is now the measure of inflation that is used as a target measure by the Government and the Bank of England. We have assumed that CPI will be 2% for each year of the regulatory control period. This is in line with the Bank of England's target.

<sup>1</sup> Office of Water Services, 'Future water and sewerage charges 2005-10: Final determinations', December 2004.

<sup>2</sup> This separation of activities is a result of the Water Services etc. (Scotland) Act 2005. This Act was described in detail in Volume 2.

<sup>3</sup> Compliance on the funds from operations divided by total net outstanding debt has been set at the minimum level for compliance. This ratio effectively determined the initial RCV.

## COPI

We have used COPI to analyse the effect of inflation on capital expenditure. COPI measures the movement in prices of construction projects. We have used the 'all new construction output index' in this draft determination. We have set COPI at 3% a year.

## Working capital and other balance sheet assumptions

Our assumptions are outlined in Table 2.

**Table 2: Balance sheet assumptions**

Title	Assumption	Value for 2006-10
Trade debtors	Number of days	27
Stocks	Percentage of operating expenditure, excluding PPP	1.5%
Prepayments and accrued income	Percentage of previous year's revenue	5.5%
Other debtors	Percentage of previous year's revenue	2.5%
Trade and capital creditors	Percentage of capital expenditure	25.60%
Accruals and deferred income	Percentage of operating expenditure, including PPP	28.0%
Other creditors	Percentage of operating expenditure, including PPP	8.0%
Cash	Balance held by Scottish Water	£2 million

## Monitoring financial performance

Our approach to charge setting in this draft determination has simplified how we monitor Scottish Water's financial performance. We can monitor progress by reviewing Scottish Water's financial indicators with those predicted by the financial model.

This draft determination assumes that Scottish Water should be capable of delivering the outputs required in the Ministerial Guidance, meeting the milestones for customer service improvement and complying with each of the targeted financial ratios in 2009-10.

## Calculation of the revenue cap

### The calculation of the required level of revenue

In Volume 5, we explained that we have moved towards the RCV approach to charge setting. Under this approach, the revenue requirement<sup>4</sup> is calculated by:

Revenue required
=
allowed for operating costs
+
allowed for PPP costs
+
depreciation
+
infrastructure renewals charge
+
tax
+
cash return on the RCV
+
working capital adjustment

We used the financial model to identify the cash return on the RCV required by Scottish Water in 2009-10. The rate of return and the embedded debt allowance were both fixed, so we were able to determine the RCV that we required in 2009-10 and the implied initial RCV<sup>5</sup>. The constraint was that Scottish Water should comply in 2009-10 with all of the targeted cash-based financial ratios. In practice, of course, Scottish Water will only comply with all of these financial ratios if it were to satisfy all of the assumptions underpinning this draft determination.

Table 3 sets out the RCV in each year of this regulatory control period.

**Table 3: Calculation of RCV in each year of this regulatory control period (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Opening RCV	£3,519.8m	£3,847.8m	£4,214.3m	£4,606.1m
Plus Inflation adjustment	£70.4m	£77.0m	£84.3m	£92.1m
Plus New investment	£534.3m	£593.0m	£633.3m	£689.5m
Less Depreciation	£187.2m	£211.2m	£230.7m	£252.3m
Less Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
Less Disposal of Assets	£1.0m	£1.1m	£1.1m	£1.1m
Equals Closing RCV	£3,847.8m	£4,214.3m	£4,606.1m	£5,037.5m
Year average	£3,683.8m	£4,031.0m	£4,410.2m	£4,821.8m

<sup>4</sup> Cash received from the disposal of assets is deducted from the revenue requirement.

<sup>5</sup> The initial RCV was backwards calculated taking account of capital expenditure, depreciation, inflation and tax payable.

## Inputs to the calculation of the required level of revenue

### Allowed for operating costs

We have input the total allowed for operating costs for both the water and the waste water services. The total allowed for level of operating costs includes:

- baseline costs;
- additions to the baseline;
- new operating costs;
- the scope for efficiency; and
- the impact of inflation.

Total allowed for operating costs are set out in Table 4.

**Table 4: Total allowed for operating costs (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Total water operating costs	£150.5m	£153.8m	£157.5m	£163.6m
Total waste water operating costs	£117.5m	£121.1m	£124.3m	£128.5m
Additional Retail Costs	£4.1m	£2.6 m	£2.1m	£1.6m
Total allowed for operating costs	£272.1m	£277.6m	£283.9m	£293.8m

### Allowed for PPP costs

The required level of revenue takes into account the costs of PPP contracts. In Table 5, we show the original costs expected to be incurred in relation to the contracts that were signed by the three former water authorities. The table also shows the new additional costs incurred as a result of extra investment that is now required and which does not appear to have been foreseen when the original contracts were signed.

**Table 5: Total allowed for costs for PPPs**

Total allowed for costs for PPPs	2006-07	2007-08	2008-09	2009-10
Original contract costs	£121.4	£123.8m	£126.3m	£128.8m
Additional costs resulting from additional investment	£1.0m	£1.0m	£3.2m	£7.0m
Total allowed PPP costs	£122.4m	£124.8m	£129.5m	£135.8m

### Depreciation

We input information on depreciation of the modern equivalent asset value of existing assets and an appropriate charge for new assets that are added during the regulatory control period. We have also input an infrastructure renewals charge, which we have set equal to the expected infrastructure renewals expenditure. The depreciation and infrastructure renewals charges are set out in Table 6.

**Table 6: Depreciation and infrastructure renewals charges**

Depreciation category	2006-07	2007-08	2008-09	2009-10
Current cost depreciation of existing assets	£178.8m	£184.2m	£182.3m	£180.1m
Current cost depreciation of new assets (after 1st April 2006)	£8.3m	£27.0m	£48.4m	£72.2m
Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
Total depreciation and infrastructure charges	£275.7m	£302.4m	£324.7m	£349.1m

### Tax

We have taken a conservative approach to the corporation tax that may be payable by Scottish Water (i.e. the highest tax liability to be incurred during this regulatory control period). Our approach takes account of the introduction of International Accounting Standards. It may no longer be possible to claim the infrastructure renewals charge as a taxable expense. This would increase the tax payable in the next few years, although there would be no difference in the total tax payable over the life of the assets.

The tax payable is shown in Table 7.

**Table 7: Corporation tax payable 2006-10 (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Corporation tax payable	£0.0m	£15.5m	£26.8m	£14.8m

### Cash return on the regulatory capital value

This is the product of the RCV in each year and the allowed rate of return. We have also added the cost of embedded debt, which had a coupon above 4.6%.

Our regulatory capital value takes account of the overhang from Quality and Standards II and the capital expenditure required to deliver both the Ministers' 'essential' and 'desirable' objectives for the industry. The allowed level of capital expenditure also takes account of the unsubstantiated claim for efficiency by the former East of Scotland Water Authority.

Scottish Water will have to deliver a significant investment programme during this regulatory control period if it is to meet all of the objectives set by Ministers. This programme is set out in Table 8.

**Table 8: Required investment programme (outturn prices)**

Investment category	2006-07	2007-08	2008-09	2009-10
Overhang from Quality and Standards II	£243.7m	£30.9m	£0.0m	£0.0m
Infrastructure renewals expenditure	£88.6m	£91.2m	£94.0m	£96.8m
Other investment (including additional retail investment)	£202.1m	£470.9m	£539.4m	£592.7m
Total investment	£534.3m	£593.0m	£633.3m	£689.5m

Asset disposals are not expected to be very material. Our estimates have taken account of the level of asset sales made by Scottish Water. We have also taken account of experience from south of the border.

Our assumptions are outlined in Table 9.

**Table 9: Asset disposals and cash proceeds (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Asset disposals (historic cost net Book Value)	£1.0m	£1.0m	£1.0m	£1.0m
Cash proceeds from asset disposals	£1.0m	£1.0m	£1.0m	£1.0m

### Revenue caps

The revenue that we propose to allow Scottish Water in each year of the regulatory control period is set out in Table 10. In line with the Ministerial Guidance, we have smoothed the change in revenue. We have estimated real increases using an assumed 2.5% increase in the retail price index (RPI).

**Table 10: Revenue caps 2006-10**

	2005-06 <sup>6</sup>	2006-07	2007-08	2008-09	2009-10
Operating costs		£272.1m	£277.6m	£283.9m	£293.8m
PPP charge		£122.4m	£124.8m	£129.5m	£135.8m
Current cost depreciation <sup>7</sup>		£187.2m	£211.2m	£230.7m	£252.3m
Infrastructure renewals charge		£88.6m	£91.2m	£94.0m	£96.8m
Cash return on the RCV <sup>8</sup>		£148.9m	£163.6m	£178.9m	£195.7m
Embedded debt allowance		£33.8m	£32.3m	£30.7m	£29.1m
Tax		£0.0m	£15.5m	£26.8m	£14.8m
Calculated revenue		£852.9m	£916.2m	£974.5m	£1,018.2m
Financeability adjustment		£129.7m	£89.3m	£34.7m	£0.0m
<b>Total revenue</b>	<b>£965.1m</b>	<b>£982.7m</b>	<b>£1,005.5m</b>	<b>£1,009.2m</b>	<b>£1,018.2m</b>
Year on year increase (nominal)		1.82%	2.33%	0.36%	0.90%
Year on year increase (real)		-0.68%	-0.17%	-2.14%	-1.60%

The revenue caps set out above show that Scottish Water's overall financial health – as measured by the debt to RCV ratio – improves modestly over the regulatory control period.

In Table 11 we set out the value of each targeted ratio for each year of this regulatory control period.

<sup>6</sup> Revenue for 2005-06 was determined using a cash-based approach, we therefore do not break it into the components of an RCV-based approach.

<sup>7</sup> Includes depreciation on disposal of non-infrastructure assets.

<sup>8</sup> Includes working capital adjustment.

**Table 11: Financial performance 2006-10**

Financial Ratio	Targeted value	2006-07	2007-08	2008-09	2009-10
Cash interest cover	Around 3 times	3.7	3.9	3.6	3.5
Adjusted cash interest cover	Around 1.6 times	2.5	2.6	2.2	2.0
Funds from operations: debt	Greater than 13%	15.9%	16.3%	14.1%	13.0%
Retained cashflow: debt	Greater than 7%	15.9%	16.3%	14.1%	13.0%
Gearing	Less than 65%	67.0%	64.6%	63.9%	63.8%

## Public expenditure

The revenue caps set out above require Scottish Water to take on considerable new debt during the next four years. This net new debt counts as public expenditure. In the February<sup>9</sup> Ministerial Guidance, Scottish Water was allowed £182 million of public expenditure a year. The Minister also allowed Scottish Water to carry forward any unused public expenditure from the 2002-06 regulatory control period.

The use of public expenditure is summarised in Table 12.

**Table 12: Public expenditure 2006-10 (outturn prices)**

		2006-07	2007-08	2008-09	2009-10
2002-06 carry over	£256.0m				
Available public expenditure at start of year (including carry-over)		£438.0m	£495.4m	£529.4m	£493.2m
Public expenditure used		£124.6m	£148.0m	£218.2m	£270.6m
Unused public expenditure at year end		£313.4m	£347.4m	£311.2m	£222.6m

It was not possible to increase the use of public expenditure and to comply fully with all of the cash-based financial ratios in each year.

We examined the impact on charges in the current and future regulatory control periods if we allowed Scottish Water to comply with all of the cash-based ratios except 'funds from operations divided by debt'. The rationale for allowing this ratio to be breached would be that Scottish Water is funded entirely by customer charges and debt and there is no indication that the Scottish Executive

may seek to require Scottish Water to pay a dividend on any retained earnings. From this standpoint, complying with this ratio could be regarded as challenging.

Our analysis has shown that a further small reduction in real terms in the level of charges faced by customers in this regulatory control period would have been possible. However, this would have made increases above the rate of inflation more likely in the next period. It would also reduce the affordability of future investment programmes. We analysed the prospects for charges and public expenditure on the assumption that a further £2,100 million of investment would be required.

Table 13 summarises this analysis.

<sup>9</sup> See Guidance on principles of charging, Appendix 4.

**Table 13: Effect of not complying with the funds from operations/debt ratio (outturn prices)**

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Revenue Required (full compliance) <sup>10</sup>	£983.7m (1.82%)	£1,005.5m (2.33%)	£1,009.2m (0.36%)	£1,018.2m (0.90%)	£1,063.3m (4.43%)	£1,110.5m (4.43%)	£1,159.6m (4.43%)	£1,211.0m (4.43%)
Revenue Required (not including funds from operations) <sup>11</sup>	£953.0m (-1.25%)	£941.1m (-1.25%)	£929.3m (-1.25%)	£917.7m (-1.25%)	£1,064.5m (16.00%)	£1,128.4m (6.00%)	£1,230.0m (9.00%)	£1,365.3m (11.00%)
Public Expenditure (full compliance) <sup>12</sup>	£124.6m	£148.0m	£218.2m	£270.6m	£192.7m	£184.4m	£221.7m	£278.8m
Public Expenditure (not including funds from operations)	£154.9m	£195.2m	£271.2m	£362.5m	£180.6m	£179.3m	£180.7m	£182.0m

We recognise that we will not have used all of the public expenditure available. However, we believe that it would not have been in the interests of customers to increase borrowing further in this regulatory control period. That may have resulted in a marginally lower charge profile today but would have led to less charge stability in the next regulatory control period. Our view is that such an approach would have been inconsistent with the Ministerial Guidance<sup>13</sup>.

We also believe that the Scottish Executive's Environment and Rural Affairs Department should hold £40 million of the unused public expenditure in reserve.<sup>14</sup> This may be required to bridge the period between extra costs that are outside the control of management being incurred and the threshold for an interim determination. This lending should only be made available to Scottish Water with the agreement of the new Water Industry Commission.

Full details of how this might work out have still to be developed. However, there should be a requirement to lodge prior notification to the new Commission in advance of this request.

## Revenue and investment comparisons with England and Wales

### Revenue per connected property

Table 14 compares the revenue allowed to Scottish Water on a per connected property basis with that which is allowed to the water and sewerage companies south of the border.

**Table 14: Estimated revenue per connected properties 2005-10 for all water and sewerage companies in Great Britain**

	Average Revenue 2005-10 <sup>15,16</sup>	Average Properties <sup>17</sup>	Average Revenue per property
Scottish Water	£897m	2.30m	£389
Anglian	£812m	2.21m	£368
Welsh	£542m	1.30m	£417
Northumbrian	£514m	1.49m	£345
Severn Trent	£1,127m	3.50m	£322
South West	£361m	0.70m	£516
Southern	£550m	1.42m	£387
Thames	£1,333m	4.42m	£302
United Utilities	£1,238m	2.97m	£417
Wessex	£337m	0.82m	£411
Yorkshire	£700m	2.06m	£340

The allowed revenue for Scottish Water on an average per connected property basis is £389. In the comparisons above, Scottish Water benefits from a lower

<sup>10</sup> Full compliance in the last year of each regulatory control period (2010 and 2014).

<sup>11</sup> Public expenditure limit increases the amount of revenue required from customers.

<sup>12</sup> Public expenditure unused in the 2006-10 regulatory control period is carried forward to 2010-14.

<sup>13</sup> See 'Guidance on Principles of Charging', Appendix 4.

<sup>14</sup> We discuss this issue in detail in Chapter 6.

<sup>15</sup> Ofwat did not disaggregate revenue or the number of properties on a year-on-year basis. Instead, it used the entire 2005-10 period. As such, Scottish Water's calculations also include 2005-06 revenue and properties for comparison purposes.

<sup>16</sup> Ofwat's final determinations use the 2002-03 price base, therefore revenue figures were indexed by the financial year average RPI to obtain 2003-04 prices.

<sup>17</sup> Simple average between water and waste water billed connections.

cost of capital than is available to the equity financed companies south of the border. If we were to adjust for the impact of the private sector cost of capital, Scottish Water's revenue per connected customer increases to £446. This would make Scottish Water's revenue per connected property the second highest in Great Britain.

## Total level of investment

Total investment in this regulatory control period amounts to £2.1 billion (2003-04 prices) after efficiency. This is an increase of 12.4% in real terms and 27.3% in nominal terms from the 2002-06 regulatory control period. This investment programme is without precedent in Scotland.

The total investment to be delivered in Scotland stands comparison with the likely level of investment south of the border in the same period. This is illustrated in Table 15.

**Table 15: Planned investment for Scottish Water and for the largest companies in England and Wales (2003-04 prices)**

(Figures in 03-04 prices) <sup>18</sup>	2005-06	2006-07	2007-08	2008-09	2009-10	Total (2005-10)	Total (2006-10)
Anglian	£271m	£325m	£353m	£315m	£282m	£1,545m	£1,275m
Severn Trent	£415m	£495m	£501m	£457m	£475m	£2,343m	£1,928m
Thames	£688m	£725m	£645m	£615m	£615m	£3,289m	£2,601m
United Utilities	£553m	£635m	£593m	£461m	£392m	£2,635m	£2,082m
Yorkshire	£357m	£318m	£309m	£295m	£247m	£1,526m	£1,169m
Scottish Water	£583m	£485m	£517m	£534m	£564m	£2,683m	£2,100m

<sup>18</sup> Source: Ofwat RD07/05, 'Regulatory capital values 2005-10', 22 April 2005. Figures were deflated by COPI to 2003-04 prices.

## Investment per connected property

Scottish Water's investment programme is very large relative to its total number of connected properties. This is shown in Table 16.

**Table 16: Total investment per connected property in 2005-10 (2003-04 prices)**

	Total investment (2005-10)	Average number of connected properties (2005-10) <sup>19</sup>	Total investment per connected property (2005-10)
Anglian Water	£1,545m	£2.21m	£701
Dwr Cymru	£1,218m	£1.30m	£937
Northumbrian Water	£891m	£1.49m	£598
Severn Trent Water	£2,343m	£3.50m	£669
South West Water	£811m	£0.70m	£1,158
Southern Water	£1,663m	£1.42m	£1,171
Thames Water	£3,289m	£4.42m	£744
United Utilities Water	£2,635m	£2.97m	£887
Wessex Water	£804m	£0.82m	£981
Yorkshire Water	£1,526m	£2.06m	£740
Scottish Water	£2,683m	£2.30m	£1,164

## Interim determinations and the logging up and down process

An interim determination is a reconsideration of a firm's price limits that could be undertaken between formal price reviews. The reconsideration is carried out in the light of a particular set of circumstances or factors outside management control that were not taken into account at the previous review. Either the firm or the regulator may initiate an interim determination.

Currently, under the outgoing regime (pursuant to the Water Industry (Scotland) Act 2002) the Water Industry Commissioner for Scotland provided advice to the Scottish Ministers on charges. Ministers can commission advice whenever they considered it necessary. In this framework, there has been no need for a specific process for interim determinations since it has been for Ministers to judge when advice needed to be revisited.

When the provisions in the 2002 Act, which were inserted by the Water Services etc. (Scotland) Act 2005

are commenced, it will be the role of the new Water Industry Commission to ensure that Scottish Water delivers the objectives of Ministers at the lowest reasonable cost. Scottish Water has to be able to recover the costs of any unexpected expenditure during a regulatory control period that results from unforeseen circumstances outside management control (rather than from under-performance).

It is important to differentiate between cost problems which arise and are reasonably within the control of managers, and those that are genuinely outside the control of management. The regulatory framework needs to be able to respond in an effective and timely way to unexpected costs that are outside the control of management. This will be achieved through the interim determinations process. We have set out our view of the major uncertainties by publishing a list of notified items with this draft determination (see below).

It is, however, for the Scottish Executive to decide on an appropriate course of action if Scottish Water does not perform at the level assumed in the determination of charges as a result of factors that are within its control. Our view is that customers should not be asked to pay twice for the same outputs.

Examples of factors that we would consider to be within and outside the control of management are outlined in Table 17.

**Table 17: Examples of factors within and outside the control of management**

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

We have set the same threshold<sup>20</sup> for an interim determination as that which is set by Ofwat for the companies in England and Wales. If the threshold is reached, either Scottish Water or the Commission could

<sup>19</sup> Simple average between water and waste water connections.

<sup>20</sup> Effect must exceed 10% of allowed revenue when calculated as the NPV over 10 years for operating costs, 15 years for revenue or capital expenditure.

initiate the interim determination process. We noted that Ministers should be prepared to increase their lending to Scottish Water up to the maximum reserve of £40 million if the new Water Industry Commission agreed that the costs incurred were outside the control of management and that additional lending was an appropriate response. In this regard, we would note that there appears to be quite ambitious assumptions on the likely customer take-up of some outputs in the funded investment programme, which may reduce (perhaps entirely) the need for Scottish Water to access this reserve public expenditure<sup>21</sup>.

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.

## Notified items

The notified items for this draft determination are set out in Table 18.

**Table 18: Notified items for the Strategic Review of Charges 2006-10**

Notified items
Inflation rates (COPI and CPI)
The definition of retail activities in the regulatory accounts.
Changes in ministerial objectives for the industry
Any change in legislation that has an impact on Scottish Water's statutory obligations
Changes in the numbers of metered customers from the 2004-05 baseline
Contractual status of overhang, and whether costs will increase by inflation
Corporation tax
Outcome of strategic drainage studies of the catchments for Meadowhead, Stevenston and Portobello

## How we propose to deal with out-performance by Scottish Water

All of the UK economic regulators use an incentive-based approach to determining charges. Under this approach, the regulator analyses the scope for the regulated company to improve its performance and sets appropriate charge caps. A determined management may out-perform the determination of charges and, in doing so, will benefit shareholders (for private companies) or customers (as in the case of the not-for-

dividend Welsh company, Glas Cymru). However, such out-performance will also raise the level of performance that is expected at future reviews. It is this 'ratchet' effect that has resulted in the significant efficiency gains that have taken place south of the border.

A key element of incentive-based regulation is ensuring that the regulated company faces a tight budgetary constraint. It is this pressure that will force management to seek to improve efficiency.

In the private sector, regulators rely on shareholders to exert pressure on management to out-perform efficiency targets. More recently, however, the creation of the not-for-dividend companies Glas Cymru and Network Rail has led regulators to consider the impact of incentive-based regulation on companies that do not have shareholders.

The founders and senior management of Glas Cymru made a commitment to create a reserve with the proceeds of out-performance. They also committed themselves to using some of the proceeds from out-performance to provide rebates to customers within the regulatory control period. Rebates were paid as soon as the company was in a strong financial position. Glas Cymru's customers have enjoyed two such rebates. We believe that from a customer perspective there is much to commend this approach.

In this draft determination, we have built on Glas Cymru's approach while taking full account of Scottish Water's particular circumstances. We set out our approach to handling out-performance in our second open letter to Scottish Ministers in May 2005.

Our view is that Scottish Water should be capable of outperforming the minimum acceptable level of performance that we have assumed in this draft determination. We would trust that Scottish Water would want to accept a lower charge cap in future years if it has been able to out-perform the determination of charges. As we explain later, foregoing part of the charges cap in one year does not mean that this may not be taken up later if the need arose.

<sup>21</sup> For example, the lead pipe replacement programme.

Clearly, it is important that transparent and effective incentives are put in place to encourage Scottish Water to deliver the exceptional performance. This will require the Executive, Scottish Water and the quality regulators (the Drinking Water Quality Regulator and the Scottish Environment Protection Agency) to establish satisfactory ways to measure delivery of specified outputs. The success of Scottish Water's management should be judged by the extent to which it delivers, as a minimum, the outputs that we have financed in this draft determination.

The detail of any incentives for Scottish Water's managers would be a matter for the Executive and Scottish Water to settle in the particular context of a publicly owned business. Our view is that, from a customer perspective, any approach would need to be founded on the principle of bonuses only being paid once Scottish Water's performance had exceeded the minimum acceptable level of performance set in the final determination of Scottish Water's charges. In our view, there will need to be a direct and transparent link, published in advance, between the bonuses that are available to senior management and improvements beyond the minimum acceptable level of performance.

## Risk analysis

Our risk analysis has identified the likelihood that the Scottish Executive could face an incidence of under-performance by Scottish Water that was within the control of management (and hence an interim determination would not be appropriate). It has also identified the risk that an interim determination may be required.

In this draft determination we have made a number of assumptions. The most material of these assumptions are set out in Table 19. These are separated into factors that are within and those that are outside the control of management.

**Table 19: Factors inside and outside management control**

Within management control	Outside management control
Operating costs: <ul style="list-style-type: none"> <li>• efficiency</li> <li>• efficiency and incidence of new operating costs</li> <li>• efficiency and incidence of additional baseline operating costs</li> </ul>	Consumer prices index (CPI)
Capital expenditure: <ul style="list-style-type: none"> <li>• efficiency scope of agreed programme</li> </ul>	Construction outputs pricing index (COPI)
	Exogenous shocks: <ul style="list-style-type: none"> <li>• change in outputs required</li> <li>• changes in legislation</li> <li>• other factors likely to trigger an interim determination</li> </ul>

We have measured exogenous shocks with reference to the frequency and outcome of interim determinations that have taken place south of the border.

## Results of our risk analysis (costs that are within the control of management)

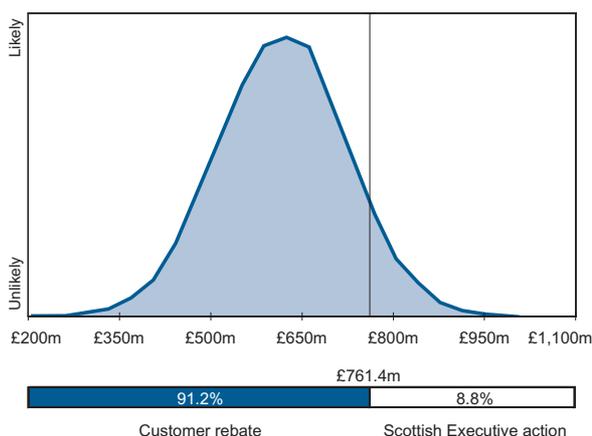
We have calculated the likelihood that Scottish Water should be in a position to deliver rebates to customers from the level of charge caps that we have set in this draft determination<sup>22</sup>. The converse is the potential requirement for the Scottish Executive to have to manage under-performance in relation to the draft determination.

<sup>22</sup> This is discussed in more detail in Chapter 8

We have modelled a range of options where Scottish Water's efficiency varies from that of a below average company south of the border to an average company south of the border. Figure 1 shows that the most likely outcome is that Scottish Water would require a cumulative total of £618 million of new debt by the end of 2009-10. This outcome would be consistent with rebates to customers during the regulatory control period, since the allowance in charge limits for new debt is £761 million. The analysis also indicates that the risk of the Scottish Executive having to address a failure to perform at least in line with the draft determination is low, at less than 9% and this could be if Scottish Water's performance was significantly below that of a poor performance company south of the border<sup>23</sup>.

In our view this highlights just how stable and predictable the water industry is. As we will see when we look at the impact of exogenous shocks and inflation (from which Scottish Water is fully protected because of the interim determination process) the main financial risks are borne by customers.

**Figure 1: Impact of operating and capital expenditure risks and inflation risks (independently) on the likelihood of customer rebates or of Scottish Executive action**



### Results of our risk analysis (costs that are outside the control of management)

We have calculated the likelihood that externally driven costs (inflation or an exogenous shock) could be sufficiently material to warrant an interim determination.

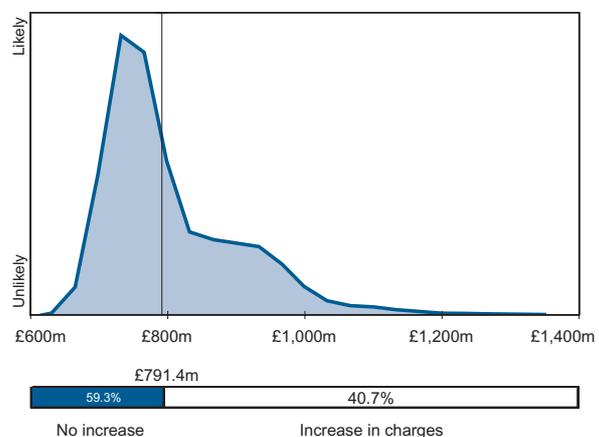
We applied a pessimistic assumption that the capital programme would be equal to the higher estimate that we have used in setting prices (£2.1 billion at 2003-04 prices). We set out the results of combining uncertainties in CPI, COPI and our assumed risk profile of exogenous<sup>24</sup> shocks in Figure 2. This shows the expected position in 2009-10. The chance of Scottish Water incurring unforeseen expenses that may breach the materiality threshold for an interim determination is around 41%.

It is important to put this risk into perspective. It says that if:

- the capital programme outturns at £2.1 billion;
- Scottish Water experiences exogenous shocks similar to those that have occurred south of the border<sup>25</sup>; and
- there are adverse swings in CPI and COPI relative to RPI;

then there is still around a 59% chance that an interim determination to increase prices would not be required. Again, this would seem to emphasise the predictable nature of the water and sewerage industry.

**Figure 2: Impact of factors outside management control on the likelihood of breaching new borrowing allowed in price limits – high capital investment programme scenario**



<sup>23</sup> Our analysis in Volume 5 suggested that a capital programme of £2.1 billion post efficiency was reasonable. This risk analysis assumes that the capital programme is £2.1 billion and that Scottish Water operate in an effective regulatory framework with appropriate incentives to perform.

<sup>24</sup> These shocks (scaled to the size of Scottish Water) range from £30 million to £220 million.

<sup>25</sup> See Chapter 8.

## Calculation of wholesale revenue

The wholesale revenue cap includes both the revenue from the retail charge caps set for household customers and the purely wholesale revenue that will be paid to Scottish Water by its retail subsidiary.

We used the accounting method<sup>26</sup> to calculate the costs that Scottish Water's retail subsidiary would incur in serving non-household customers. Scottish Water and its retail subsidiary are both likely to incur additional costs as a result of it becoming separate businesses. These costs are likely to include carrying out new activities, or carrying out existing activities under different operating conditions. However, there is also likely to be increased scope for efficiency.

One of the most important new costs would be the cost of capital of the retail subsidiary. This has to be set at a level that would not disadvantage potential new entrants. We therefore commissioned Ernst & Young LLP to advise on an appropriate cost of capital for Scottish Water's retail subsidiary<sup>27</sup>. They advised that a reasonable weighted average cost of capital (WACC) for the new retail business is between 8.2% and 9.4% nominal pre-tax. The cost of equity is assumed to be 12% and the cost of debt is assumed to be 6%. This compares with our hybrid WACC of 4.13% for Scottish Water's core business.

## Summary of costs

The increase in total costs (core and retail combined) as a result of the separation of the retail activities is set out in Table 20.

**Table 20: Impact on total costs of separation of retail activities (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Increased operating costs – retail	£0.73m	£0.80m	£3.93m	£3.95m
Increase operating costs – wholesale	£0.26m	£0.22m	£1.12m	£1.09m
Increased cost of capital	£3.15m	£3.72m	£3.83m	£3.83m
Increased tax	£0.50m	£0.50m	£0.50m	£0.50m
Wholesale efficiencies <sup>28</sup>	-£0.57m	-£2.63m	-£4.28m	-£5.94m
Retail efficiencies <sup>29</sup>	£0.00m	£0.00m	-£2.45m	-£2.35m
Total additional operating expenditure	£4.08m	£2.60m	£2.65m	£1.08m

We have added these costs to the financial model in setting the revenue cap.

The revenue cap for the wholesale business is set out in Table 21.

<sup>26</sup> This method was described in Volume 3 of our methodology consultation.

<sup>27</sup> Ernst & Young LLP, 'Cost of capital report for the Water Industry Commissioner for Scotland' (May 2005). See Appendix 8.

<sup>28</sup> We believe that there is scope to accelerate the improvement in operating cost efficiency in both the wholesale and retail business after separation. There is evidence from both the electricity and gas industries that disaggregation of the value chain has identified a number of activities (conducted by the vertically integrated monopoly) that were not adding value. Separate studies by Professor Littlechild and Cambridge Econometrics (highlighted in Volume 4) have shown the improvement in operating cost efficiency that can be achieved through separation. Our estimates assume that less improvement is available in the Scottish water industry than the ex post analysis of the electricity industry might suggest.

<sup>29</sup> As above.

**Table 21: Revenue cap for the wholesale business (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Total non-household revenue	£326.7m	£330.1m	£327.1m	£329.4m
Retail Margin	-£32.72m	-£35.5m	-£36.4m	-£36.3m
Non-household wholesale revenue	£294.0m	£294.6m	£290.6m	£293.2m
Household revenue	£642.0m	£661.2m	£667.5m	£673.8m
Secondary revenue	£13.9m	£14.2m	£14.6m	£15.0m
Total Revenue	£949.9m	£970.1m	£972.8m	£982.0m

## Introduction of tariff baskets

We use tariff baskets to translate the revenue cap into retail charge caps. We have established ten tariff baskets to cover the core services provided by Scottish Water. These tariff baskets will ensure that the removal of the £44 million cross subsidy is as transparent as possible. The tariff baskets should also allow customers to understand more clearly the implications of this draft determination on their bills.

### Calculating the retail charge cap

The charge cap is the weighted average increase in tariffs within a basket. It is therefore the maximum amount by which tariffs on average can increase within a tariff basket.

In this draft determination we have set retail charges relative to the retail price index. This is the same index that Ofwat uses to set charge limits for the water and sewerage companies in England and Wales. Scottish Water therefore has the same protection against financing inflation risk as the companies south of the border.

The retail charge cap regime applied in Scotland will mirror that which is used in England and Wales. Scottish Water would be permitted to carry over any unused change in charges from one year to following years. Unused charge cap is denoted with the letter 'u'. The real charge cap is denoted by the letter 'K'.

The maximum charge cap is determined as follows:

$$\text{Charge Cap} \leq \text{RPI} + \text{K} + \text{u}$$

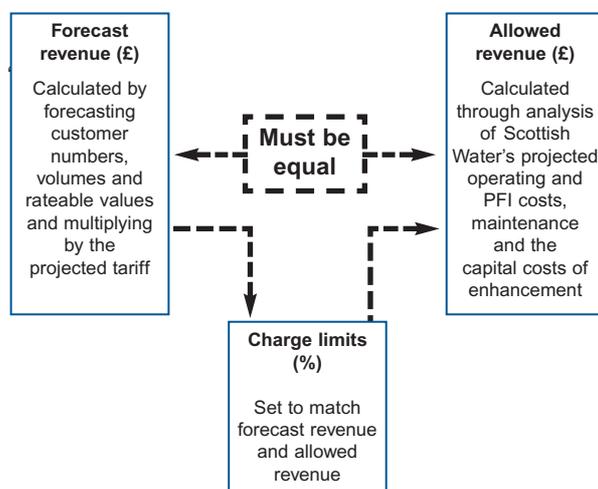
In this draft determination we have used the following ten tariff baskets:

- household unmeasured water;
- household unmeasured waste water;
- non-household unmeasured water;
- non-household unmeasured waste water;
- measured water with 25mm connection or greater;
- measured waste water with 25mm connection or greater;
- surface water drainage (excluding unmeasured household);
- trade effluent;
- standard metered water connection 20mm; and
- standard metered waste water connection 20mm.

We have set a charge cap in the form RPI+K for each basket.

## Retail charge caps

Figure 3 illustrates the charge setting process. We firstly calculate charge limits for both Scottish Water's core functions and its retail subsidiary combined. We then calculate separate charge limits for Scottish Water's core (wholesale) function.

**Figure 3: How charge limits are set<sup>30</sup>**

The charge limits for non-household customers will limit the increases in charges that the new retail subsidiary of Scottish Water can levy on its customers. We expect the new Commission 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'.

We have also set limits on the increases in charges that Scottish Water can charge its own and future retailers of water and waste water services to non-household customers.

The K factor for each tariff basket, against which we will monitor Scottish Water, is shown in Table 22.

**Table 22: The K factor for each tariff basket**

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-2.5%	-2.5%
Household unmeasured wastewater	-0.5%	-0.5%	-2.5%	-2.5%
Non-household unmeasured water	-2.5%	-2.5%	-4.6%	-2.5%
Non-household unmeasured wastewater	-2.5%	-2.5%	-4.6%	-2.5%
Measured water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Measured wastewater (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Surface water drainage (excluding unmeasured domestic)	-2.5%	-2.5%	-4.6%	-2.5%
Trade effluent	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered wastewater connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Overall weighted average price increase	-1.2%	-1.2%	-3.2%	-2.5%

### Charge limits for Scottish Water's core wholesale business

There is no precedent within the water and sewerage industry in the UK for the setting of wholesale charges. We believe therefore that it is important that Scottish Water has the opportunity to decide how it wants to set its wholesale tariffs<sup>31</sup>. We will therefore ask Scottish Water 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 implied wholesale revenue cap for 2005-06.

We consider that as the market develops, Scottish Water wholesale may wish to rebalance tariffs to better reflect the underlying costs. We have therefore set one K factor for the entire non-household wholesale business.

The revenue cap, expected growth in the non-household customer base and the corresponding K factor are set out in Tables 23 and 24.

**Table 23: Forecast non-household wholesale revenue resulting from changes in the customer base (outturn prices)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Forecast non-household wholesale revenue	£322.7m	£326.7m	£330.1m	£333.9m	£336.3m
Percentage change		1.3%	1.0%	1.2%	0.7%

<sup>30</sup> The charge limits will influence the individual tariff within each basket.

<sup>31</sup> Scottish Water did not provide any detailed information on its plans for wholesale tariffs in its second draft business plan.

**Table 24: Non-household wholesale charge limits (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Previous year revenue	£290.3m	£294.0m	£294.6m	£290.6m
Percentage change due to customer base changes	1.3%	1.0%	1.2%	0.7%
Revenue base for year	£294.0m	£297.0m	£298.0m	£292.8m
Allowed revenue	£294.0m	£294.6m	£290.6m	£293.2m
(Allowed revenue / Revenue base) minus 1	0.0%	-0.8%	-2.5%	0.1%
The K factor (subtract RPI)	-2.5%	-3.3%	-5.0%	-2.4%

## The impact of charge limits on customers' bills

In the 2006-10 regulatory control period, all household customers (except second home owners) will see a reduction in their tariffs in real terms. No group of non-household customers that is currently paying tariffs within Scottish Water's scheme of charges will face a real increase in the tariffs they pay.

We use a number of standard customers to monitor the impact of our charge caps on individual types of customers.

Table 25 summarises the impact of our charge caps on each of our standard customers.

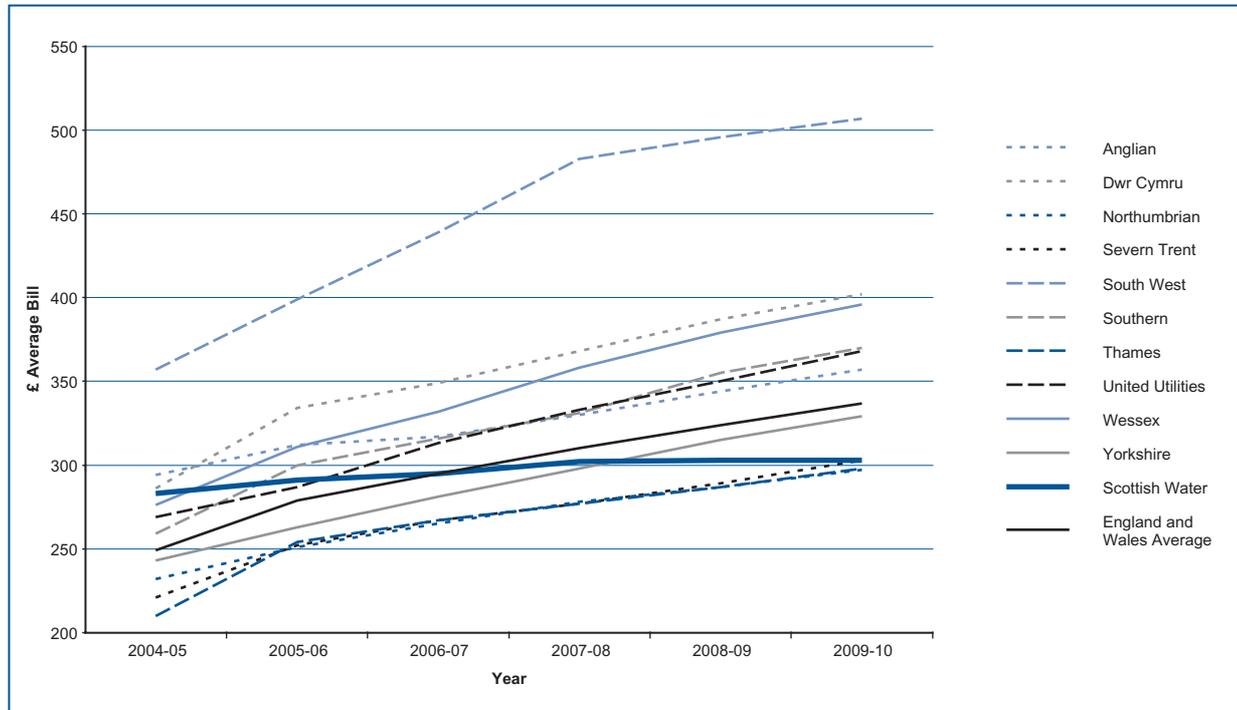
**Table 25: Effects on all standard customers' bills  
2005-06 to 2009-10**

Customer name	Customer type	Total bill 2005-06	Nominal bill 2009-10	% change in bill
Band D unmeasured household	Unmeasured household	£347.76	£361.81	4.04%
Large house	Measured household	£652.85	£639.14	-2.10%
Small newsagent/grocer	Unmeasured household	£304.07	£297.68	-2.10%
Local hairdresser	Unmeasured household	£379.53	£371.56	-2.10%
Sports club	Unmeasured household	£518.91	£508.01	-2.10%
Supermarket	Unmeasured household	£3,427.11	£3,355.14	-2.10%
Warehouse	Measured household	£306.38	£299.95	-2.10%
High school	Measured household	£4989.30	£4,884.52	-2.10%
Hotel	Measured household	£34,326.75	£33,605.89	-2.10%
Convenience store	Measured household	£545.53	£534.08	-2.10%
Garage	Measured household	£854.85	£836.90	-2.10%
Large restaurant	Measured household	£4,876.79	£4,774.38	-2.10%
Large office	Measured household	£29,876.62	£29,249.21	-2.10%
Retail group	Measured household	£87,850.30	£86,005.45	-2.10%
Food manufacturer 1	Measured household	£108,427.50	£106,150.52	-2.10%
Food manufacturer 2	Measured household	£223,671.00	£218,973.91	-2.10%
Large manufacturer	Measured household	£421,631.75	£412,777.48	-2.10%
Brewers	Measured household	£579,068.00	£566,907.57	-2.10%
Bakery	Trade effluent	£294.24	£288.06	-2.10%
Clothing manufacturer	Trade effluent	£5,560.53	£5,443.76	-2.10%
Abattoir	Trade effluent	£118,796.65	£116,301.92	-2.10%
Electronics business	Trade effluent	£211,029.12	£206,597.51	-2.10%
Printers	Trade effluent	£15,240.28	£14,920.24	-2.10%
Distillery	Trade effluent	£67,163.59	£65,753.16	-2.10%

We can compare the projected average household charge for 2006-10 for each of the water and sewerage companies in England and Wales with Scottish Water's expected average household bill. This comparison is shown in Figure 4<sup>32</sup>. It shows that by 2009-10 the average household bills in Scotland will be amongst the lowest in England and Wales.

<sup>32</sup> Scottish Water benefits from the lower cost of capital. Customers would likely pay a little more if the level of service provided in Scotland was the same (in all respects) as in England and Wales.

**Figure 4: Comparison of household bills in Scotland with those in England and Wales 2006-10**



## Outlook for 2010 to 2014

We have set indicative charge caps for the period 2010-14. These charge caps are broadly in line with retail price inflation.

The indicative charge caps are set out in Table 26.

**Table 26: Indicative charge caps for 2010-14**

Year	2010-11	2011-12	2012-13	2013-14
K Factor <sup>33</sup>	0.0%	0.0%	0.0%	0.1%

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 real prices;
- capital inflation of 3%;

- there is no change in the key financial ratios;
- 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 that they are prepared to make available.

## Summary

This draft determination offers the prospect of falling charges in real terms for almost all customers. Most household customers will see their charges fall by over 4% in real terms. Average 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.

It is also important to note that this draft determination funds an investment programme of £2,100 million in

<sup>33</sup> Adjustment in tariff basket income relative to the rate of retail price inflation.

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. Only Thames Water, which has approximately twice as many customers as Scottish Water, has a larger investment programme.

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 10% 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. Over the next few years, if Scottish Water continues to improve its efficiency, average household bills will continue to be among the lowest in the UK.

# Section 1: Introduction

## Chapter 1: Introduction

### Introduction

For most customers, the most important output of a Strategic Review of Charges is the level and profile of prices they will have to pay for their water and waste water services. Our role is to set charges that will allow Scottish Water to meet the objectives that Scottish Ministers have set for the industry in Scotland during the 2006-10 regulatory control period. We have set charges that are as high as they need to be, but no higher than they need to be. It is now for the management of Scottish Water to determine how best to use the resources available to deliver both the Ministers' 'essential' and 'desirable' objectives.

This volume sets out our views on the revenue required by Scottish Water for the 2006-10 regulatory control period. It also sets out the impact of this level of revenue on customers' charges. We explain in detail how we have set both the required level of revenue and the corresponding charge caps. We also describe the modelling assumptions we have used.

We have set the caps at a level which ensures that Scottish Water's revenue is sufficient to meet the expenditure required for the effective exercise of its core functions. At the same time, the caps are set such that if Scottish Water were to perform in line with the assumptions in this draft determination then it would comply with all of the cash-based financial ratios that Ofwat used, during its 2004 final determination<sup>34</sup>, to assess the financial strength of the companies it regulates. This should ensure that the interests of both current and future customers have been taken into account.

In this volume we also explain the impact of the separation of retail activities for non-household customers. We describe how we have set appropriate charge caps for both the wholesale and retail activities.

Finally, we consider the impact of the proposed charge caps on customers. We use analysis of standardised customers' bills to predict the impact on typical customers.

This volume is presented in four sections.

**Section 1** contains this introductory chapter.

**Section 2** contains seven chapters. In this section we describe how we have established the required level of revenue.

- Chapter 2 explains our financial modelling for this draft determination and the assumptions we have used.
- Chapter 3 describes the approach we have taken to setting a charge cap and how this differs from the approach taken in the previous Review.
- Chapter 4 describes how we calculated the charge cap using the financial model. It explains how we have ensured that Scottish Water should comply with Ofwat's financial ratios in 2009-10.
- Chapter 5 compares the revenue level allowed to Scottish Water with that allowed for the water and waste water companies in England and Wales.
- Chapter 6 explains the interim determination and logging up/down process. This is the mechanism by which we can adjust charges if something happens that is outside the control of Scottish Water's management. Interim determinations can either increase or decrease charges to customers.
- Chapter 7 outlines our initial thoughts on how we should manage out-performance of the determination of charges by Scottish Water.
- Chapter 8 describes the risk analysis that we have undertaken to test how robust are our conclusions on revenue and charges.

**Section 3** comprises one chapter concerning the split of Scottish Water's activities into wholesale and retail.

- Chapter 9 determines the level of wholesale revenue based on the revenue cap.

<sup>34</sup> The 'funds from operations divided by total net outstanding debt ratio' effectively determines the initial RCV.

**Section 4** contains four chapters that focus on charge setting and its impact on customers.

- Chapter 10 explains our use of tariff baskets.
- Chapter 11 outlines the wholesale and retail charge caps that will apply for the 2006-10 regulatory control period.
- Chapter 12 describes the ‘standard customers’ that we use to monitor the impact of charge caps on customers’ bills and to compare the level of charges in Scotland with those in England and Wales.
- Chapter 13 describes the prospects for future charges.

# Section 2: Setting the required level of revenue

## Chapter 2: Financial modelling

### Introduction

In this chapter we describe how we used our financial model to calculate the revenue that Scottish Water needs to raise from customers. The chapter also details our assumptions and the ratios that we used to determine whether the proposed charge caps are consistent with the longer term financial sustainability of Scottish Water.

### Background

We have the general statutory function of promoting the interests of customers and prospective customers of Scottish Water's core business. One of the ways in which we do this is by ensuring that Scottish Water has sufficient funding to carry out its core functions as a water and sewerage service undertaker in an efficient manner.

Scottish Water's funding comes from two sources:

- revenue raised through charges to customers; and
- borrowing (usually from government).

The revenue that is raised from customers is determined by the charge limits that we set for Scottish Water. We use a financial model to inform our calculation of the charge limits. The model therefore plays a key role in the Strategic Review of Charges 2006-10, having an impact on:

- customers – because it is used in determining the limits on charges for water and sewerage services; and
- Scottish Water – because it is used in determining the level of funding available for the business to carry out its core functions.

We have set charge caps for each of the four years covered by the Strategic Review of Charges 2006-10. Charge limits are forward looking and therefore in setting these limits we have had to make a number of assumptions. These assumptions concern both macroeconomic factors and factors that are specific to Scottish Water.

One of the key considerations of our modelling was the financial sustainability of Scottish Water. We used a set of ratios to assess financial sustainability. These ratios are the same as those used by Ofwat to assess the financial sustainability of the water industry south of the border. Scottish Water's revenue in 2009-10 has been set such that it will comply with all of the cash-based financial ratios if it performs in line with this draft determination.

### The financial model

The model calculates the required charge limits having taken account of the costs that Scottish Water is likely to incur. Constructed in Microsoft Excel®, the model consists of a series of linked spreadsheets. The model projects forward to March 2025. Our analysis has, however, focused on the period to 2014.

At the end of September 2004 we published the model and a user manual on our website. The user manual contained more detailed information about the model. This model has subsequently been updated to model the potential corporation tax liability of Scottish Water. This revised model is available on our website.

### Development of the model

We developed the model using internal resources. The model takes account of the proposals outlined in our methodology consultation and has been subject to rigorous internal analysis. This has ensured that all of the formulae perform as we would expect and that the results are consistent with our expectations when inputting test information.

We asked Ernst & Young LLP to review both the initial and final versions of the financial model. Their comments on the financial model are included in Appendix 12.

In June 2004 we provided a draft version of the model to Scottish Water. We also gave Scottish Water an opportunity to comment on the model at a workshop in July 2004. An updated version of the model was provided to Scottish Water in February 2005 to assist them in completing their second draft business plan.

We believe that our own internal challenge and the detailed scrutiny provided by Ernst & Young LLP's review should reassure stakeholders that the output of the financial model is reliable.

## Best practice guidelines

The Institute of Chartered Accountants for England and Wales publishes a useful guide on building financial models, 'Spreadsheet modelling best practice'<sup>35</sup>. It provides guidelines on scoping, specifying, designing, building, testing and using spreadsheet models. It recommends that spreadsheet models should separate the following processes:

- inputs,
- calculations, and
- results.

It also recommends that there should be a title sheet explaining the model; that, where possible, the spreadsheet should read from left to right and top to bottom; that more, rather than fewer more complex, worksheets are used; and that each row contains only one formula.

## Structure of the model

The structure of our model follows the best practice guidelines. The spreadsheets within the model can be divided into six categories:

- Key – this explains the use of colours within the model.
- Input – these are the sheets into which we have input information.
- Process – these sheets use input information in calculations that feed into the output sheets.
- Accounting outputs – these spreadsheets show the projected financial statements for Scottish Water. They allow us to understand the minimum amount of

revenue that Scottish Water requires.

- Main outputs – these worksheets contain financial ratios analysis. These sheets are critical to an understanding of whether the level of revenue is consistent with the financial sustainability of Scottish Water.
- Variation sheet – this allows the user to understand whether the level of revenue is at the minimum level consistent with financial sustainability for Scottish Water.

## Information in the model

We provided Scottish Water with the input tables for the financial model as part of the business plan guidance, which we issued in December 2004.

The model also contains financial assumptions. These assumptions include our calculation of real interest rates and our expectation of inflation. All of this input information influenced the final answer that was calculated by the model. We have produced a full audit trail for each input into the model.

## Financial assumptions<sup>36</sup>

In building our model, we needed to make a number of financial assumptions. These are briefly described below.

### Inflation

Inflation measures increases in the prices of goods and services. Our assumptions on inflation are important because the model calculates revenues over a number of years. We use indices to calculate inflation. In this draft determination we have used two indices to take account of cost inflation, namely:

- the Consumer Price Index (CPI) for all non-asset costs; and
- the Construction Output Price Index (COPI), to assess the impact of increases in prices on investments.

<sup>35</sup> Nick and Johnathan Batson, 'Spreadsheet modelling best practice', April 1999, available at <http://www.eusprig.org/#DOWNLOADS>.

<sup>36</sup> At the time of writing, the Scottish Water Annual Report for 2004-05 is not available. 2004-05 figures are our estimate.

We have, however, linked prices to retail price inflation. This should reduce any financing risks faced by Scottish Water.

## CPI

We believe that the CPI is an appropriate measure of inflation for non-capital goods costs. The CPI is now the measure of inflation that is used as a target measure by the Government and the Bank of England. We have assumed that CPI will be 2% for each year of the regulatory control period. This is in line with the Bank of England's target.

## COPI

We have used COPI to analyse the effect of inflation on capital expenditure. COPI measures the movement in prices of construction projects. We have used the 'all new construction output index' in this draft determination.

The Department of Trade and Industry publishes COPI on a quarterly basis.

## Cash

We have assumed that Scottish Water maintains a cash balance of £2 million throughout the regulatory control period.

## Working capital and other balance sheet assumptions

Working capital comprises current assets and current liabilities. Current assets include cash, debtors, stocks and prepayments. Current liabilities include items such as trade and capital creditors, and short-term debt.

We forecast changes in working capital in the financial model. Our assumptions are outlined in Table 2.1. Our calculation of tax uses the previous year's revenue in the 'prepayments and accrued income' and 'other debtors' ratios. This has only a small effect on the level of revenue required.

**Table 2.1: Balance sheet assumptions**

Title	Assumption	Value for 2006-10
Trade debtors	Number of days	27
Stocks	Percentage of operating expenditure, excluding PPP	1.5%
Prepayments and accrued income	Percentage of previous year's revenue	5.5%
Other debtors	Percentage of previous year's revenue	2.5%
Trade and capital creditors	Percentage of capital expenditure	25.60%
Accruals and deferred income	Percentage of operating expenditure, including PPP	28.0%
Other creditors	Percentage of operating expenditure, including PPP	8.0%
Cash	Balance held by Scottish Water	£2 million

## Exceptional/extraordinary costs

We have assumed that there are no exceptional items.

## Financial sustainability

This section outlines the financial ratios we have used in this draft determination. Our financial model automatically calculates these ratios.

As explained earlier, we have set Scottish Water's revenue in 2009-10 such that it will comply with each of the cash-based ratios if it were to meet the terms of this draft determination.

## Ofwat's use of financial ratios

Ofwat has a duty to ensure that an efficient company can finance its functions. It uses ratios to assess the financial sustainability of water and sewerage companies. It also consults the capital markets on the appropriate financial ratios for the regulatory control period. We have compared Scottish Water's financial ratios with those used in Ofwat's last two price determinations:

- 1999 price review – covering the period 2000-05; and
- 2004 price review – covering the period 2005-10.

Ofwat set out a list of the financial ratios that it had taken into account in setting price limits at the 1999 review in its report, 'Final determinations: Future water and sewerage charges 2000-05'. These ratios are shown in Table 2.2.

**Table 2.2: Ofwat's target ratios for 2000-05**

	Water and sewerage companies	Large water only companies	Small water only companies
Historic cost interest cover	Min 2%	Min 2.25%	Min 2.5%
Average gearing (DD+E)	45-55%	45-55%	45-55%
Cash interest cover (EBITDA Basis)	Min 3%	Min 3.4%	Min 3.75%
Cash interest cover (EBIDA Basis)	Min 2%	Min 2.25%	Min 2.5%
Debt payback period (EBITDA Basis)	Max 5 yrs	Max 5 yrs	Max 5 yrs
Debt payback period (EBIDA Basis)	Max 7 yrs	Max 7 yrs	Max 7 yrs
Cashflow to capital expenditure ratio (EBIDA Basis)	Min 40%	Min 40%	Min 40%

In 'Future water and sewerage charges 2005-10: Final determinations', Ofwat outlined the financial indicators that it had used to set prices for the next regulatory period. Table 2.3 shows these ratios.

**Table 2.3: Ofwat's target ratios for 2005-10**

	Target
Cash interest cover (funds from operations/gross interest)	Around 3 times
Adjusted cash interest cover (funds from operations less capital charges/gross interest)	Around 1.6 times
Adjusted cash interest cover (funds from operations less capital maintenance expenditure/gross interest)	Around 2 times
Funds from operations/debt	Greater than 13%
Retained cashflow/debt	Greater than 7%
Gearing (net debt/regulatory capital value)	Below 65%

Ofwat outlined its reasons for changing the financial ratios in its MD 190 letter<sup>37</sup>. It explained that it was seeking to reflect the emphasis that the rating agencies now place on cash-based ratios.

## Our approach in the Strategic Review 2006-10

We have adopted both the ratios and target values used by Ofwat in its price determinations for 2005-10. Where Ofwat states that a target is 'around' a certain level, we have assumed that the ratio for Scottish Water should be within 25% of the target. Compliance with the financial ratios is a constraint on prices in 2009-10. We are not concerned if performance is too good against an individual ratio unless Scottish Water complies with all the cash-based ratios in 2009-10.

<sup>37</sup> MD 190, 'Further guidance to companies for final business plans', March 2004.

<sup>38</sup> Unlike Ofwat, we do not include interest received as income, as the projected amounts are not expected to be material.

We have also published the two debt payback period ratios and the cash flow to capital expenditure ratio that Ofwat used for the 2000-05 regulatory period. We believe that it is desirable for Scottish Water to be broadly compliant with the target value for those ratios.

The following paragraphs explain how each of these ratios have been calculated<sup>38</sup> and their significance. The financial model manual explains in detail how each of the inputs for these ratios is calculated.

### Cash interest cover (2004 price review)

This ratio calculates the number of times net cash flow from operations after paying any taxes can cover the interest expenses of the same year. A value of one would mean that the company generated just enough cash to cover its interest expenses. This ratio does not take account of any investment in capital.

$$\frac{\text{Net cash flow from operations} - \text{tax}}{\text{Interest paid}}$$

Ofwat has targeted a value of around 3 for this ratio.

### Adjusted cash interest cover (2004 price review)

This ratio calculates the number of times that interest can be paid out of net cash flow from operations less investment in maintaining assets. Ofwat differentiates between 'maintenance charges' and 'maintenance expenditure' and calculates two separate ratios.

Ofwat believes that the companies should achieve a ratio of around 1.6 times for the maintenance expenditure ratio and around 2 times for the maintenance charge ratio. We have used 1.6 times as the appropriate target for Scottish Water.

The adjusted cash interest cover ratio is calculated as follows:

$$\frac{\text{Net cash flow} - \text{depreciation} - \text{infrastructure renewals expenditure} - \text{tax}}{\text{Interest paid}}$$

### Funds from operations to debt (2004 price review)

This ratio measures the percentage of outstanding debt that can be covered by funds generated from operations. Ofwat expects this ratio to be greater than 13%.

The ratio of funds from operations to debt is calculated as follows:

$$\frac{\text{Net cash flow from operations} - \text{tax} - \text{interest paid}}{\text{Net debt}}$$

This ratio is the most challenging to Scottish Water as it is funded entirely by debt and customer retained earnings. We discuss in Chapter 4 the consequences of setting lower prices in this regulatory control period and not complying with this ratio.

### Retained cash flow to debt (2004 price review)

This ratio measures the ability of a company to pay its debt back from cash retained within the business. The output is a percentage; Ofwat expects the companies to achieve a ratio of no less than 7%.

The ratio is calculated as follows:

$$\frac{\text{Net cash flow from operations} - \text{tax} - \text{dividends}}{\text{Net debt}}$$

### Gearing (2004 price review)

This is a measure of Scottish Water's level of indebtedness. It is the total debt divided by the RCV. Ofwat expects companies to maintain a ratio of below 65%. We will use this ratio as a general guide to the overall financial strength of Scottish Water.

The ratio is calculated as follows:

$$\frac{\text{Net debt}}{\text{RCV}}$$

### Debt payback period (EBITDA basis) (1999 price review)

This is a measure of how many years it would take a company to pay back its debt from earnings before interest, tax, depreciation and amortisation:

$$\frac{\text{Net debt}}{\text{Net cash flow from operating activities}}$$

### Debt payback period (EBDA basis) (1999 price review)

This is a measure of how many years it would take a company to pay back its debt from earnings before depreciation and amortisation but after interest and tax:

$$\frac{\text{Net debt}}{\text{Net cash flow from operating activities less interest less tax}}$$

### Cash flow to capital expenditure (1999 price review)

The cash flow to capital expenditure ratio measures how much of the capital programme is being paid out of current cash flows:

$$\frac{\text{Net operating cash flow from operating activities less tax less interest}}{\text{IRE plus other asset additions less asset disposals}}$$

## Summary

We have used a financial model to set the charge limits in this draft determination. It calculates the revenue required by Scottish Water to carry out its core functions.

We have made a number of assumptions about inflation and working capital in order to set the required level of revenue for Scottish Water.

One of the key considerations of our modelling was the financial sustainability of Scottish Water. We have set prices in 2009-10 such that Scottish Water's financial position complies with the cash-based target ratios if it were to perform in line with this draft determination. The targeted ratios are those used by Ofwat in its price

determinations for 2005-10. We have also published the two debt payback period ratios and the cashflow to capital expenditure ratio that Ofwat used for the 2000-05 regulatory control period.

Our financial model provides a reliable, transparent and auditable basis for price setting. We believe that the assumptions we have made are both prudent and appropriate. The revenue caps we have calculated are consistent with our duty to set prices at a level that is consistent with Scottish Water delivering the objectives of Ministers at the lowest reasonable cost.

# Section 2: Setting the required level of revenue

## Chapter 3: Approach to setting a revenue cap

### Introduction

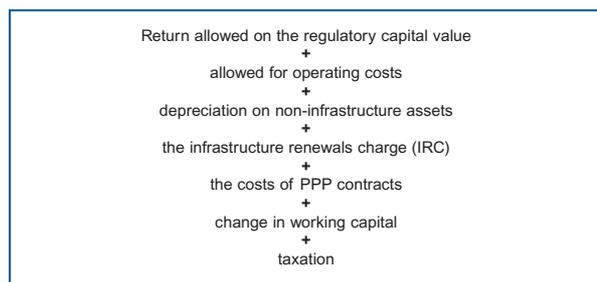
This draft determination sets the revenue that Scottish Water should require to provide an appropriate water and sewerage service to customers and meet the objectives outlined in the Ministerial Guidance. Most customers are concerned primarily about the level and profile of prices they will have to pay. The role of a regulator, in broad terms, is to set prices that are only as high as they need to be to ensure that the objectives of Scottish Ministers can be met at the lowest reasonable overall cost.

We have moved towards the regulatory capital value method of price setting in this draft determination. We have set charges in 2009-10 such that Scottish Water will comply with all of the financial ratios monitored by Ofwat<sup>39</sup> if it were to perform at the level assumed by this draft determination. This should ensure that the calculation of revenue is more transparent than in the Strategic Review of Charges 2002-06.

This chapter provides a brief summary of how we have calculated the revenue cap and ensured that we will be in a position to use the regulatory capital value method of price setting at the next determination of charges.

### The calculation of revenue

The financial model calculates revenue as follows:



Our approach to setting price limits involved the following stages:

- We identified the investment that Scottish Water had to deliver in the 2006-10 regulatory control period.
- In line with Ministerial Guidance, we opted to smooth the change in revenue required to reach the target of

financial sustainability over the four years of the regulatory control period.

- We calculated the depreciation and infrastructure renewals charges that were consistent with this investment programme and with Scottish Water’s estimated net Modern Equivalent Asset Value in 2005-06.
- We identified the total allowed for level of operating expenditure in each year.
- We identified the allowed for costs of Public Private Partnerships.
- We estimated asset disposals and the cash proceeds from disposals.
- We determined the downwards adjustment to the initial RCV that was appropriate given the delay in delivery of the Quality and Standards II programme.
- We determined an appropriate rate of return (including the expected marginal real interest rate) and the allowance for embedded debt.

As discussed in the previous chapter, the financial model also contained a number of assumptions with regard to working capital, inflation rates and the calculation of tax.

We used the financial model to identify the cash return on the RCV required by Scottish Water in 2009-10. As the rate of return and embedded debt allowance were fixed, this meant that in effect we were determining the regulatory capital value that we required in 2009-10 in order to ensure that Scottish Water would comply with the targeted financial ratios if it were to perform at the level assumed by this draft determination.

This was an iterative process because different RCVs in 2009-10 resulted in different RCVs in earlier years. These different RCVs affected the revenue required in each year. The level of revenue in turn affects the surplus generated, borrowing required and the tax charge payable and the cash flow generated in 2009-10.

<sup>39</sup> Except debt to RCV, which, for a wholly debt funded company, is much less relevant than the cash-based (debt affordability) ratios. However, our final answer in the financial model did comply with the ratio.

The financial model helped us to resolve this circular calculation.

The calculation provided us with a value for the initial RCV. We checked this calculated value for the initial RCV with our analysis of comparators and found it to be reasonable.

## Monitoring financial performance

Our approach simplifies the monitoring of financial performance. Scottish Water's financial performance will be in line with the assumptions in the determination of charges if it complies with each of the targeted financial ratios in 2009-10. We can monitor progress by reviewing Scottish Water's financial indicators during the regulatory control period with those predicted by the financial model.

It will, of course, be critical to monitor delivery of the capital programme and the level of service provided to customers closely. Scottish Water should not seek to ensure compliance with its financial targets by cutting corners on customer service or by delaying the delivery of the investment objectives set out by the Ministerial Guidance.

## Conclusion

We have moved towards the RCV method of price setting in this draft determination. This should improve the transparency of our calculation of the required level of revenue. It will also allow more robust comparisons to be drawn of the financial strength of the industry in Scotland relative to that of the companies south of the border.

Our approach ensures that if Scottish Water were to perform at the level assumed in this draft determination then it will comply with all of the cash-based ratios used by Ofwat to monitor the industry in England and Wales. This will facilitate monitoring as it will be clear (through a comparison of the targeted financial ratios) whether or not Scottish Water has met the financial terms of the determination of charges. Clearly, Scottish Water must not cut corners on either the investment delivery or level

of service to customers in order to meet its financial targets. Our annual reports will comment on Scottish Water's progress in these areas.

# Section 2: Setting the required level of revenue

## Chapter 4: Calculation of the revenue cap

### Introduction

In the previous chapter, we described how we set the revenue cap. This chapter now sets out our calculations. It reviews the information that we entered into the financial model and the calculation of the minimum level of revenue that Scottish Water would require in 2009-10 in order to be financially sustainable. As explained previously, we have adopted the same ratios as Ofwat in our assessment of financial sustainability. These were set out in detail in Chapter 2.

The chapter sets out the levels of investment, operating cost, depreciation and PPP costs that we have allowed for. We also explain the approach that we have taken to the calculation of tax. This information allows us to calculate the required regulatory capital value in 2009-10 and, consequently, the initial RCV.

In line with the Ministerial Guidance on the principles of charging, we have phased the increase in revenue required.

### The investment programme

In Chapter 15 of Volume 5, we set out the investment programme that Scottish Water will have to deliver during this regulatory control period if it is to meet all of the objectives set by Ministers. The programme is set out in Table 4.1.

**Table 4.1: Required investment programme (outturn prices)**

Investment category	2006-07	2007-08	2008-09	2009-10
Overhang from Quality and Standards II	£243.7m	£30.9m	-	-
Infrastructure renewals expenditure	£88.6m	£91.2m	£94.0m	£96.8m
Other investment (including additional retail investment)	£202.1m	£470.9m	£539.4m	£592.7m
<b>Total investment</b>	<b>£534.3m</b>	<b>£593.0m</b>	<b>£633.3m</b>	<b>£689.5m</b>

### Depreciation and infrastructure renewals charges

In Chapters 13 and 16 of Volume 5, we explained how we calculate the infrastructure renewals and depreciation charges. The depreciation charge can be divided into the depreciation of existing assets (represented by Scottish Water's net Modern Equivalent Asset Value) and depreciation of new assets. The infrastructure renewals charge has been set equal to actual spending on infrastructure renewals in Table 4.1. The depreciation and infrastructure renewals charges are shown in Table 4.2.

**Table 4.2: Depreciation and infrastructure renewals charges (current cost basis, outturn prices)**

Depreciation category	2006-07	2007-08	2008-09	2009-10
Current cost depreciation of existing assets	£178.8m	£184.2m	£182.3m	£180.1m
Current cost depreciation of new assets (after 1st April 2006)	£8.3m	£27.0m	£48.4m	£72.2m
Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
<b>Total depreciation and infrastructure charges</b>	<b>£275.7m</b>	<b>£302.4m</b>	<b>£324.7m</b>	<b>£349.1m</b>

### Total allowed for operating costs

In Chapter 15 of Volume 6, we summarised the maximum level of operating costs that Scottish Water should incur in meeting the Ministers' objectives and providing an improving level of service to customers. Total operating costs include the following:

- base operating costs, including any adjustments;
- our estimate of the scope for efficiency;
- our estimate of Consumer Price Inflation; and
- new operating costs.

Total allowed for operating costs are set out in Table 4.3.

**Table 4.3: Total allowed for operating costs (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Total water operating costs	£150.5m	£153.8m	£157.5m	£163.6m
Total waste water operating costs	£117.5m	£121.1m	£124.3m	£128.5m
Additional retail costs	£4.1m	£2.6m	£2.1m	£1.6m
<b>Total allowed for operating costs</b>	<b>£272.1m</b>	<b>£277.6m</b>	<b>£283.9m</b>	<b>£293.8m</b>

## Allowed costs of Public Private Partnerships

We explained our approach to PPP in Volume 5. Some additional investment has become necessary at the sites that are managed by the PPP contractors. This investment will have to be delivered by these contractors and is likely to require contract amendments. In Table 4.4, we have shown the original costs expected to be incurred in relation to the contracts signed by the three former water authorities. The table also shows the new additional costs incurred as a result of extra investment that is now required and which does not appear to have been foreseen when the original contracts were signed.

**Table 4.4: Total allowed for costs for PPPs (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Original contract costs	£121.4m	£123.8m	£126.3m	£128.8m
Additional costs resulting from additional investment	£1.0m	£1.0m	£3.2m	£7.0m
<b>Total allowed for PPP costs</b>	<b>£122.4m</b>	<b>£124.8m</b>	<b>£129.5m</b>	<b>£135.8m</b>

## Asset disposals and cash proceeds

Asset disposals are not expected to be very material. Our estimates have taken account of the level of asset sales made by Scottish Water. We have also taken account of experience from south of the border.

Our assumptions are outlined in Table 4.5.

**Table 4.5: Asset Disposals and cash proceeds (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Asset disposals (Net Book Value)	£1.0m	£1.0m	£1.0m	£1.0m
Cash proceeds from asset disposals	£1.0m	£1.0m	£1.0m	£1.0m

## Other inputs to the financial model

We set an allowed rate of return of 0.72% real post-tax. We also allowed the extra costs incurred by Scottish Water for all its embedded debt that had a coupon greater than 4.6% nominal. The interest rate on new or refinanced debt was set in line with the rate of return on debt included in our cost of capital calculation. We have used a debt to RCV ratio of 65% in our application of our hybrid WACC. This is discussed in more detail in Chapter 18 of Volume 5.

The model also uses two separate inflation rates. We use the Consumer Price Index to inflate the costs of all operating and PPP costs. The Construction Output Price Index is used to inflate capital expenditure. Charges have been set relative to RPI in order to remove the financing risk from Scottish Water.

The model also takes account of the unsubstantiated claim for efficiency made by the former East of Scotland Water Authority. In line with our agreement with the Board of Scottish Water, we have subtracted £16.04 million a year in outturn prices from the allowed level of capital expenditure.

## Our approach to the calculation of tax

We have taken a conservative approach (i.e. assumed the highest level of corporation tax that Scottish Water is likely to pay) in the calculation of tax. Our approach is based on the advice that we received from Ernst & Young LLP and our understanding of the potential introduction of international accounting standards.

The main difference relates to the treatment of infrastructure renewals expenditure. Scottish Water currently claims its infrastructure renewals charge as an expense for tax purposes. Our understanding is that soon

this practice may not satisfy Her Majesty's Revenue and Customs. In future, expenditure on infrastructure renewals will have to be capitalised and depreciated over the life of the assets. This increases the taxable surplus generated by Scottish Water and will lead to an increase in the initial tax payable. Over the life of these assets there is no increase in the tax that will be payable, but there is a difference in when the tax becomes payable.

If we have overestimated the tax that is payable, we believe that Scottish Water ought to return this cash to customers through the rebate scheme that we describe in Chapter 7. Depending on the materiality of the difference an interim determination could otherwise become appropriate.

## The calculation of revenue

We used the financial model to identify the cash return on the RCV required by Scottish Water in 2009-10. The rate of return and the embedded debt allowance were both fixed so we were able to determine the regulatory capital value that we required in 2009-10. The constraint was that Scottish Water should comply in 2009-10 with all of the targeted cash-based financial ratios. In practice, of course, Scottish Water will only comply with all of these financial ratios if it were to perform at the level assumed in this draft determination.

The financial model calculated the value of the initial and 2009-10 RCV.

Table 4.6 sets out the RCV in each year of this regulatory control period.

**Table 4.6: Calculation of RCV in each year of this regulatory control period (outturn prices)**

		2006-07	2007-08	2008-09	2009-10
	Opening RCV	£3,519.8m	£3,847.8m	£4,214.3m	£4,606.1m
Plus	Inflation adjustment	£70.4m	£77.0m	£84.3m	£92.1m
Plus	New investment	£534.3m	£593.0m	£633.3m	£689.5m
Less	Depreciation	£187.2m	£211.2m	£230.7m	£252.3m
Less	Infrastructure renewals charge	£88.6m	£91.2m	£94.0m	£96.8m
Less	Disposal of assets	£1.0m	£1.1m	£1.1m	£1.1m
Equals	Closing RCV	£3,847.8m	£4,214.3m	£4,606.1m	£5,037.5m
	Year average	£3,683.8m	£4,031.0m	£4,410.2m	£4,821.8m

The tax payable is shown in Table 4.7.

**Table 4.7: Corporation tax payable 2006-10 (outturn prices)**

Corporation tax payable	2006-07	2007-08	2008-09	2009-10
Corporation tax payable	£0.0m	£15.5m	£26.8m	£14.8m

The revenue we allow Scottish Water in each year is set out in Table 4.8. This table also shows the annual increase in revenue in both nominal and real terms. We estimate real increases using an assumed 2.5% increase in the retail price index (RPI).

**Table 4.8: Revenue caps 2006-10 (outturn prices)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Operating costs	n/a	£272.1m	£277.6m	£283.9m	£293.8m
PPP charge	n/a	£122.4m	£124.8m	£129.5m	£135.8m
Current cost depreciation <sup>40</sup>	n/a	£187.2m	£211.2m	£230.7m	£252.3m
Infrastructure renewals charge	n/a	£88.6m	£91.2m	£94.0m	£96.8m
Cash return on the RCV <sup>41</sup>	n/a	£148.9m	£163.6m	£178.9m	£195.7m
Embedded debt allowance	n/a	£33.8m	£32.3m	£30.7m	£29.1m
Tax	n/a	£0.0m	£15.5m	£26.8m	£14.8m
Calculated revenue	n/a	£852.9m	£916.2m	£974.5m	£1,018.2m
Financeability adjustment	n/a	£129.7m	£89.3m	£34.7m	£0.0m
<b>Total revenue</b>	<b>£965.1m</b>	<b>£982.7m</b>	<b>£1,005.5m</b>	<b>£1,009.2m</b>	<b>£1,018.2m</b>
Year on year increase (nominal)	–	1.82%	2.33%	0.36%	0.90%
Year on year increase (real)	–	-0.68%	-0.17%	-2.14%	-1.60%

## Financial performance

In Table 4.9 we set out the value of each targeted ratio for each year of this regulatory control period.

**Table 4.9: Financial performance 2006-10**

Financial ratio	Targeted value	2006-07	2007-08	2008-09	2009-10
Cash interest cover	Around 3 times	3.7	3.9	3.6	3.5
Adjusted cash interest cover	Around 1.6 times	2.5	2.6	2.2	2.0
Funds from operations: debt	Greater than 13%	15.9%	16.3%	14.1%	13.0%
Retained cashflow: debt	Greater than 7%	15.9%	16.3%	14.1%	13.0%
Gearing	Less than 65%	67.0%	64.6%	63.9%	63.8%

This table shows that Scottish Water at least complies with the targeted value for each ratio (with the exception

of 'debt to RCV') in each year. Scottish Water's overall financial strength, as measured by the debt to RCV ratio, improves modestly over the regulatory control period. We believe that this financial performance is consistent with the Guidance that we received from Ministers.

## Public expenditure

The revenue caps set out below require Scottish Water to take on considerable new debt during the next four years. This net new debt counts as public expenditure.

In the Minister's February statement, Scottish Water was allowed £182 million of public expenditure a year. Scottish Ministers also allowed Scottish Water to carry forward any unused public expenditure from the 2002-06 regulatory control period.

<sup>40</sup> Includes depreciation on disposal of non-infrastructure assets.

<sup>41</sup> Includes working capital adjustment.

The use of public expenditure is summarised in Table 4.10.

**Table 4.10: Public expenditure 2006-10 (outturn prices)**

		2006-07	2007-08	2008-09	2009-10
2002-06 carry over	<b>£256.0m</b>				
Available public expenditure at start of year (including carry-over)		£438.0m	£495.4m	£529.4m	£493.2m
Public expenditure used		£124.6m	£148.0m	£218.2m	£270.6m
Unused public expenditure at year end		£313.4m	£347.4m	£311.2m	<b>£222.6m</b>

It was not possible to increase the use of public expenditure and comply fully with all of the cash-based financial ratios in each year.

We considered the impact on prices in the current and future regulatory control periods if we allowed Scottish Water to comply with all of the cash-based ratios except 'funds from operations divided by debt'. The rationale for allowing this ratio to be breached would be that Scottish Water is funded entirely by customer charges and debt and there is no indication that the Scottish Executive will seek to require Scottish Water to pay a dividend on any retained earnings. From this standpoint complying with this ratio could reasonably be regarded as challenging.

Our analysis has shown that a further small reduction in real terms in the level of charges faced by customers in this regulatory control period would have been possible if we had not required Scottish Water to comply with all of the cash-based financial ratios. However, this would have made increases above the rate of inflation more likely in the next regulatory control period. It would also have reduced the affordability of future investment programmes.

Table 4.11 summarises this analysis.

Our analysis has assumed that the required capital programme in 2010-14 is set at the same level of £2,100 million in 2003-04 prices.

**Table 4.11: Effect of not complying with the funds from operations/debt ratio (outturn prices)**

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Revenue required (full compliance) <sup>42</sup>	£983.7m (1.82%)	£1,005.5m (2.33%)	£1,009.2m (0.36%)	£1,018.2m (0.90%)	£1,063.3m (4.43%)	£1,110.5m (4.43%)	£1,159.6m (4.43%)	£1,211.0m (4.43%)
Revenue required (not including funds from operations) <sup>43</sup>	£953.0m (-1.25%)	£941.1m (-1.25%)	£929.3m (-1.25%)	£917.7m (-1.25%)	£1,064.5m (16.00%)	£1,128.4m (6.00%)	£1,230.0m (9.00%)	£1,365.3m (11.00%)
Public expenditure (full compliance) <sup>44</sup>	£124.6m	£148.0m	£218.2m	£270.6m	£192.7m	£184.4m	£221.7m	£278.8m
Public expenditure (not including funds from operations)	£154.9m	£195.2m	£271.2m	£362.5m	£180.6m	£179.3m	£180.7m	£182.0m

Our view is that the revenue scenario outlined in Table 4.11 would have been inconsistent with the Ministerial Guidance<sup>45</sup>. Our view is also that increasing borrowing further in this regulatory control period would not have been in the interests of customers. This may have resulted in a marginally better price profile today but it would have led to higher charges and larger increases in charges in the next regulatory control period.

We believe that £40 million of the public expenditure that is not used should be held in reserve by the Scottish Executive Environment and Rural Affairs Department. As we will describe in Chapter 6, there is an interim determination process. This is only triggered when a certain threshold is breached and the costs incurred are outside the control of management. Our analysis suggests that £40 million may be required before it would be possible to trigger an interim determination. This lending should only be made available to Scottish Water with the agreement of the new Water Industry Commission and only to cover the costs of events that are outside the control of management.

It is for the Scottish Executive to decide how it would deal with under-performance against the final determination. Our view remains that customers should not be asked to pay twice for the same output.

## Summary income and expenditure account

The summary income and expenditure account is set out in Table 4.12. A more detailed account is available in Appendix 15. The appendix sets out the full results of our financial model and the modelling assumptions used.

**Table 4.12: Summary income and expenditure accounts 2005-10 (current cost basis, outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Turnover	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Operating costs	£-394.5m	£-402.4m	£-413.4m	£-429.6m
Infrastructure renewals charge	£-88.6m	£-91.2m	£-94.0m	£-96.8m
Current cost depreciation	£-188.8m	£-212.8m	£-232.4m	£-254.0m
<b>Operating surplus before working capital adjustments</b>	<b>£310.8m</b>	<b>£299.0m</b>	<b>£269.4m</b>	<b>£237.8m</b>
Working capital adjustments	£2.8m	£2.4m	£2.7m	£2.9m
<b>Operating surplus before interest</b>	<b>£313.6m</b>	<b>£301.4m</b>	<b>£272.1m</b>	<b>£240.6m</b>
Net interest payable	£-149.6m	£-153.9m	£-160.5m	£-170.5m
Net gain/(loss) on disposal of assets	£0.0m	£-0.1m	£-0.1m	£-0.1m
Current cost financing adjustment	£3.1m	£4.4m	£5.3m	£5.9m
<b>Surplus before taxation</b>	<b>£167.2m</b>	<b>£151.8m</b>	<b>£116.8m</b>	<b>£75.9m</b>
Taxation (including deferred tax)	£-74.5m	£-74.1m	£-64.0m	£-51.8m
<b>Current cost surplus for financial year</b>	<b>£92.7m</b>	<b>£77.7m</b>	<b>£52.8m</b>	<b>£24.1m</b>

## Summary balance sheet

The summary balance sheet is set out in Table 4.13. A more detailed balance sheet is available in Appendix 12.

<sup>42</sup> Full compliance in the last year of each regulatory control period (2010 and 2014).

<sup>43</sup> Public expenditure limit increases the amount of revenue from customers.

<sup>44</sup> Public expenditure unused in the 2006-10 regulatory control period is carried forward to 2010-14.

<sup>45</sup> Ministerial Guidance – see Appendices 4 and 15.

**Table 4.13: Summary balance sheets 2006-10  
(current cost basis, outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Tangible assets	£25,379.8m	£26,430.8m	£27,531.3m	£28,696.5m
Investments	£0.1m	£0.1m	£0.1m	£0.1m
Working capital	-£117.7m	-£132.6m	-£142.9m	-£161.2m
<b>Net operating assets</b>	<b>£25,262.2m</b>	<b>£26,298.3m</b>	<b>£27,388.4m</b>	<b>£28,535.4m</b>
Other short-term assets	-£36.1m	-£38.2m	-£34.0m	-£33.8m
Other long-term assets	-£217.8m	-£263.8m	-£293.2m	-£324.4m
<b>Net assets employed</b>	<b>£25,008.3m</b>	<b>£25,996.3m</b>	<b>£27,061.2m</b>	<b>£28,177.1m</b>
Government loans	£2,553.6m	£2,708.2m	£2,934.3m	£3,207.9m
Other reserves (including current cost reserve)	£22,059.5m	£22,815.2m	£23,601.2m	£24,419.4m
Total retained earnings	£395.2m	£472.9m	£525.7m	£549.8m
<b>Total capital and reserves</b>	<b>£25,008.3m</b>	<b>£25,996.3m</b>	<b>£27,061.2m</b>	<b>£28,177.1m</b>

## Summary cash flow statements

The summary cash flow account is set out in Table 4.14. A more detailed cash flow account is available in Appendix 12.

**Table 4.14: Summary cash flow statements 2006-10  
(current cost basis, outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Current cost operating profit	£310.8m	£299.0m	£269.4m	£237.8m
Total depreciation, amortisation and infrastructure charges	£277.4m	£304.1m	£326.4m	£350.8m
Change in working capital	-£29.8m	£10.3m	£5.7m	£14.5m
Net cashflow from operations	£558.3m	£613.4m	£601.5m	£603.1m
Infrastructure renewals expenditure	-£95.2m	-£91.2m	-£94m	-£96.8m
Other net additions	-£438.1m	-£500.8m	-£538.4m	-£591.7m
Net cashflow from operations less investment	£25.0m	£21.4m	-£30.8m	-£85.4m
<b>Financing cash flow</b>				
Loans repaid	£59.6m	£68.0m	£81.1m	£66.4m
Interest paid	£149.6m	£153.9m	£160.5m	£170.5m
Taxation paid	£0.0m	£15.5m	£26.8m	£14.8m
New debt (including refinancing)	£184.1m	£216.0m	£299.3m	£337.0m

## Other financial indicators

In Table 4.15 we set out other financial information from the financial model. This includes the two ratios from the Ofwat 1999 price determinations that we used at the time of the last Strategic Review of Charges. Other information includes the average interest rate and other traditional accounting ratios.

**Table 4.15: Other financial indicators 2006-10**

	2006-07	2007-08	2008-09	2009-10
Debt payback period (EBITDA basis)	4.6	4.4	4.9	5.3
Debt payback period (EBDA basis)	6.3	6.1	7.1	7.7
Cashflow to capital expenditure ratio (EBDA basis)	76.6%	75.0%	65.5%	60.7%
Weighted average cost of debt	5.8%	5.6%	5.5%	5.3%
Historic cost, return on capital employed	5.0%	4.5%	3.5%	2.6%
Current cost, return on capital employed	0.37%	0.30%	0.20%	0.09%

## Conclusion

This chapter has explained how we calculated the revenue cap and has shown the information that we included in the financial model. We have also set out the target values of the financial ratios by which we have judged the financial sustainability of Scottish Water. As is appropriate for a debt funded company, we have targeted those ratios which are cash based and indicate the affordability of the company's debt. The ratio of debt to RCV is useful as a general indicator of the financial health of Scottish Water. In line with the Ministerial Guidance the financial health of Scottish Water would improve marginally over this regulatory control period if Scottish Water were to perform at the level assumed in this draft determination.

It would, of course, not be in the customer interest for Scottish Water to cut corners on either the investment delivery or level of service to customers in order to meet its financial targets. Our annual reports will comment on Scottish Water's progress.



# Section 2: Setting the required level of revenue

## Chapter 5: Revenue and investment comparisons with England and Wales

### Introduction

In the previous chapter we outlined the level of revenue that we believe Scottish Water requires to meet the objectives set by Ministers and to deliver an improving level of service to customers.

In this chapter we look at this level of revenue in comparison with the revenue of the licensed companies south of the border. We also consider the level of investment that will be delivered during the 2006-10 regulatory control period and compare this at an absolute level and on a per connected property basis with the level of investment south of the border.

The chapter ends with a statement of Scottish Water's current performance in terms of its overall performance assessment (OPA). The underlying premise of this draft determination is that Scottish Water should provide a level of service that is broadly equivalent to that which is offered to customers in England and Wales.

### Revenue per connected property

The level of revenue required by Scottish Water is set out in Table 5.1.

**Table 5.1: Scottish Water required level of revenue (2005-10)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Revenue (nominal prices)	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Revenue (03-04 prices) <sup>46</sup>	£913.1m	£907.1m	£905.6m	£886.7m	£872.8m

The estimated number of connected properties is shown in Table 5.2.

**Table 5.2: Estimated number of connected (billed) properties 2005-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Number of connected (billed) water properties	2,323,117	2,340,295	2,357,470	2,374,647	2,391,824

The growth in the number of connected properties primarily reflects an increase in the number of households connected, but also some growth in the number of business properties connected. This increase in the number of non-household properties connected results from significant investment in removing development constraints.

The level of revenue relative to the number of connected properties is outlined in Table 5.3.

**Table 5.3: Estimated revenue per connected property 2005-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Revenue per connected property (nominal prices)	£425	£430	£436	£435	£435
Revenue per connected property (03-04 prices)	£402	£396	£393	£382	£373

Table 5.4 compares the revenue allowed to Scottish Water on a per connected property basis with that which is allowed to the water and sewerage companies south of the border.

**Table 5.4: Estimated revenue per connected properties 2005-10 for all water and sewerage companies in Great Britain**

Revenue per connected property (2003-04 prices)	Average revenue 2005-10 <sup>47, 48</sup>	Average revenue per properties <sup>49</sup>	Average revenue per property
Scottish Water	£897m	2.30m	£389
Anglian	£812m	2.21m	£368
Welsh	£542m	1.30m	£417
Northumbrian	£514m	1.49m	£345
Severn Trent	£1,127m	3.50m	£322
South West	£361m	0.70m	£516
Southern	£550m	1.42m	£387
Thames	£1,333m	4.42m	£302
United Utilities	£1,238m	2.97m	£417
Wessex	£337m	0.82m	£411
Yorkshire	£700m	2.06m	£340

The average revenue raised by Scottish Water on a per connected property basis is £389. In this comparison,

<sup>46</sup> Figures deflated by financial year average RPI.

<sup>47</sup> Ofwat did not disaggregate revenue or number of properties on a year-to-year basis. Instead it used the entire 2005-10 period. As such, Scottish Water's calculations also include 2005-06 revenue and properties for comparison purposes.

<sup>48</sup> Ofwat's final determinations uses 2002-03 price base, therefore revenue figures were indexed by financial year average RPI to obtain 2003-04 prices.

<sup>49</sup> Simple average between water and waste water connections.

Scottish Water benefits from its lower cost of capital relative to the equity financed companies south of the border. The cost to customers in Scotland if the cost of capital available to Scottish Water were the same as the rate of return allowed by Ofwat in its 2004 final price determinations is £130 million (in average 2003-04 prices) million. This is equivalent to an extra £56.30 (average 2003-04 prices) per connected property. This would give Scottish Water (at £446) the second highest revenue per connected property in Great Britain.

## Average household bill

The estimated number of households connected is shown in Table 5.5.

**Table 5.5: Estimated number of connected (billed) household properties 2005-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	2,201,798	2,216,799	2,231,797	2,246,797	2,261,797
Waste water	2,123,258	2,138,254	2,153,260	2,168,260	2,183,258

The growth in the number of households connected is broadly in line with recent experience and takes account of the estimated house building programme that is reflected in the Ministers' objectives for removing development constraints.

The level of household revenue relative to the number of households connected is outlined in Table 5.6. This is the average household bill

**Table 5.6: Average household bill 2005-10 (outturn prices)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Water bill	£137	£139	£142	£143	£143
Water waste bill	£154	£156	£159	£160	£160
Total bill	£291	£295	£302	£303	£303

Table 5.7 compares Scottish Water average household bills with the water and sewerage companies south of the border.

**Table 5.7: Estimated average household bill 2005-10 for all water and sewerage companies in Great Britain (outturn prices)**

Average household bill (outturn prices) <sup>50,51</sup>	2005-06	2006-07	2007-08	2008-09	2009-10
Anglian	£312	£317	£330	£344	£357
Dwr Cymru	£334	£349	£368	£387	£402
Northumbrian	£251	£265	£278	£287	£297
Severn Trent	£252	£267	£277	£289	£303
South West	£399	£439	£483	£496	£507
Southern	£300	£316	£331	£355	£370
Thames	£254	£267	£277	£287	£298
United Utilities	£287	£313	£333	£350	£368
Wessex	£311	£332	£358	£379	£396
Yorkshire	£263	£281	£298	£315	£329
England and Wales	£279	£295	£310	£324	£337
Scottish Water	£291	£295	£302	£303	£303

Scottish Water's average household bill is £303 in 2009-10. This will constitute the third lowest household bill in Great Britain.

If household customers of Scottish Water had to pay charges based on Ofwat's assessment of the market cost of capital, they would have bills some £50 (17%) higher.<sup>52</sup>

## Total level of investment

Total investment in this regulatory control period will amount to £2.1 billion (2003-04 prices) after efficiency. This is an increase of 12.4% in real terms and 27.3% in nominal terms from the 2002-06 regulatory control period. This investment programme is without precedent in Scotland.

The total investment to be delivered in Scotland stands comparison with the likely level of investment south of the border in the same period. Three companies south of the border are larger than Scottish Water in terms of the number of customers served. Two companies are broadly the same size in terms of customers served. The relative size of Scottish Water is shown in Table 5.8.

<sup>50</sup> Average household bill is the sum of the average water bill plus the average waste water bill.

<sup>51</sup> Ofwat's final determination figures were indexed by 3.45% (as per the Ofwat Tariff Report 2005-06) and then by 2.5% on the following years.

<sup>52</sup> Revenue from household customers would have to increase by £111 million.

**Table 5.8: Relative size of Scottish Water**

Company	Water customers <sup>53</sup>	% of Scottish Water	Sewerage customers <sup>54</sup>	% of Scottish Water
Thames	3.39m	144%	5.24m	233%
Severn Trent	3.22m	137%	3.63m	161%
United Utilities	2.95m	125%	2.89m	128%
Anglian	1.91m	81%	2.45m	109%
Yorkshire	2.01m	85%	2.00m	89%
Scottish Water	2.36m	100%	2.25m	100%

The planned investment for each of these companies during the period 2006-10 (in 2003-04 prices) is outlined in Table 5.9.

**Table 5.9: Planned investment for the largest water and sewerage companies in England and Wales**

(Figures in 03-04 prices) <sup>55</sup>	2005-06	2006-07	2007-08	2008-09	2009-10	Total (2005-10)	Total (2006-10)
Anglian	£271m	£325m	£353m	£315m	£282m	£ 1,545m	£1,275m
Severn Trent	£415m	£495m	£501m	£457m	£475m	£ 2,343m	£1,928m
Thames	£688m	£725m	£645m	£615m	£ 615m	£ 3,289m	£2,601m
United Utilities	£553m	£635m	£593m	£461m	£ 392m	£2,635m	£2,082m
Yorkshire	£357m	£318m	£309m	£295m	£ 247m	£1,526m	£1,169m
Scottish Water	£583m	£485m	£517m	£534m	£ 564m	£2,683m	£2,100m

The planned programme of investment in Scotland is relatively very high. Only Thames Water, which supplies about twice as many customers, has a larger investment programme.

We also looked at the investment programmes of the companies south of the border since privatisation of the water industry in 1989. For the purposes of the analysis, we compared the level of investment in 2003-04 prices. Our analysis shows that only three companies have delivered a larger capital programme (over a four-year period). Indeed, Scottish Water's programme is the fourth largest four-year investment programme in the recent history of the water and sewerage industry in the UK. Neither of the companies that are broadly similar in size to Scottish Water has ever delivered a capital investment programme of this size. Indeed, the current planned programme is 13% and 22% larger than the largest programme ever delivered by Anglian Water or Yorkshire Water respectively.

## Investment per connected property

Scottish Water's investment programme is also very large relative to its total number of connected properties. We compared Scottish Water's level of investment per connected property with those of the companies south of the border. The average number of connected properties for each of the companies is shown in Table 5.10.

<sup>53</sup> As of 2003-04 (Ofwat June Return, Scottish Water Annual Return).

<sup>54</sup> Ibid.

<sup>55</sup> Source: Ofwat RD 07/05, Regulatory capital values 2005-10. April 22 2005. Figures were deflated by COPI to 2003-04 prices.

**Table 5.10: Average number of connected properties (2005-10)<sup>56</sup>**

	Water	Sewerage	Simple average
Anglian	1.94	2.47	2.21
Dwr Cymru	1.29	1.31	1.30
Northumbrian	1.84	1.14	1.49
Severn Trent	3.30	3.70	3.50
South West	0.74	0.66	0.70
Southern	1.03	1.81	1.42
Thames	3.49	5.36	4.42
United Utilities	3.00	2.94	2.97
Wessex	0.54	1.10	0.82
Yorkshire	2.06	2.06	2.06
England and Wales	19.22	22.55	20.89
Scottish Water	2.36	2.25	2.30

Table 5.11 shows total investment in 2005-10 for every water and sewerage company in Great Britain. It also shows the total investment per connected property. Only South West Water has a comparable programme in terms of investment per connected property and this programme is very much smaller in absolute terms. Scottish Water's programme is some 31% larger on a per connected property basis than the largest programme of one of the companies of a similar or larger size.

**Table 5.11: Total investment per connected property in period 2005-10**

	Total investment (2005-10) <sup>57</sup>	Average number of connected properties (2005-10) <sup>58</sup>	Total investment per connected property (2005-10)
Anglian	£1,545m	2.21m	£701
Dwr Cymru	£1,218m	1.30m	£937
Northumbrian	£891m	1.49m	£598
Severn Trent	£2,343m	3.50m	£669
South West	£811m	0.70m	£1,158
Southern	£1,663m	1.42m	£1,171
Thames	£3,289m	4.42m	£744
United Utilities	£2,635m	2.97m	£887
Wessex	£804m	0.82m	£981
Yorkshire	£1,526m	2.06m	£740
Scottish Water	£2,683m	2.30m	£1,164

<sup>56</sup> This calculation includes 2005-06 as Ofwat did not disaggregate connected properties on a year-by-year basis.

<sup>57</sup> Figures in 2003-04 prices.

<sup>58</sup> Simple average between water and waste water connections.

## Investment per household

The level of investment on a per connected household basis shows a similar pattern. This is outlined in Table 5.12.

**Table 5.12: Total investment per connected (billed) household**

	Total investment (2005-10)	Average number of households (2005-10) <sup>59</sup>	Total investment per household (2005-10)	Average yearly investment per household
Anglian	£1,545m	2.08m	£743	£149
Dwr Cymru	£1,218m	1.21m	£1,007	£201
Northumbrian	£891m	1.41m	£632	£126
Severn Trent	£2,343m	3.25m	£720	£144
South West	£811m	0.64m	£1,274	£255
Southern	£1,663m	1.34m	£1,245	£249
Thames	£3,289m	4.17m	£789	£158
United Utilities	£2,635m	2.78m	£948	£190
Wessex	£804m	0.75m	£1,074	£215
Yorkshire	£1,526m	1.94m	£789	£158
Scottish Water	£2,683m	2.19m	£1,224	£245

This total investment per connected household compares with an average household bill in 2003-04 prices over the 2006-10 regulatory control period of £301 per year.

## Current and expected overall performance assessment comparison

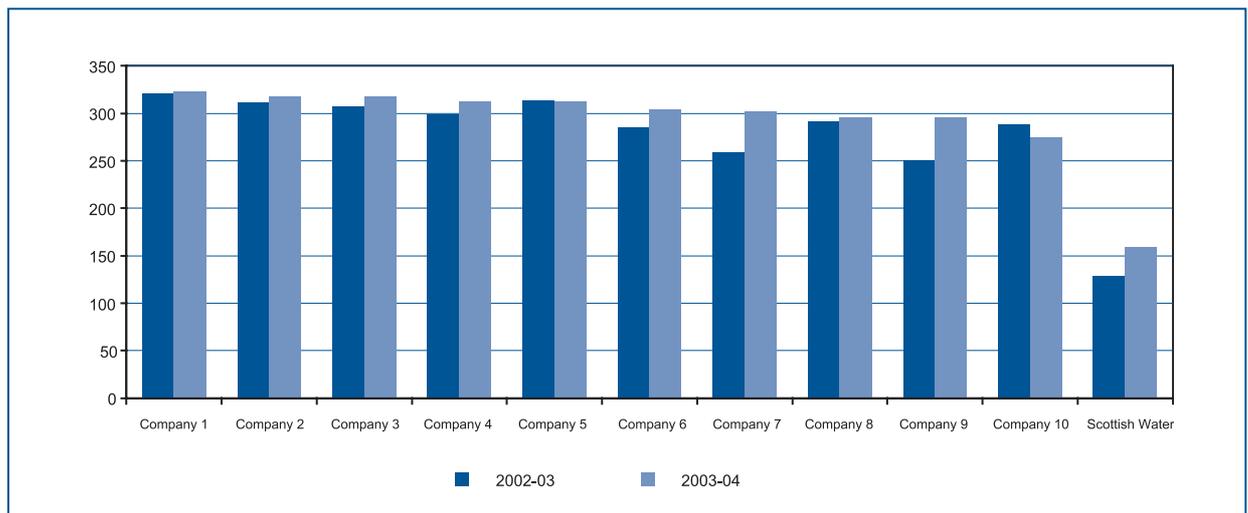
We believe that the customers of Scottish Water are entitled to receive a level of service that is broadly equivalent to that provided to customers south of the border. We have adopted the OPA measure, which Ofwat developed to measure the overall level of service provided by companies to their customers. In the annual levels of service reports that we have published to date we focused on measuring and comparing those parameters for which information was readily available. In this draft determination we have broadened our analysis to include all of the parameters measured by Ofwat that have a defined equivalent in Scotland.

In determining the scope for efficiency, we have assumed that Scottish Water will make significant

<sup>59</sup> Simple average between water and waste water connections. Ofwat's final determinations did not disaggregate household from non-household customers or on a year-on-year basis. Therefore, we have assumed that these will maintain the same ratio as registered in Ofwat's June Return 2003-04.

progress in improving its level of service to customers. The OPA scores for each company in 2003-04 are set out in Figure 5.13.

**Figure 5.13: OPA scores in 2003-04**



We have assumed that Scottish Water’s performance should improve markedly.

Performance ahead of the milestone level would be encouraging and would mean that we can be confident that Scottish Water is improving its efficiency. If Scottish Water does not achieve the milestone, we would adjust our assessment of Scottish Water’s operating cost performance to take account of the shortfall in customer service.

The milestones<sup>60</sup> are outlined in Table 5.14. For reference, in 2003-04 the best performing company south of the border scored 323 and the poorest performing company scored 274.

**Table 5.14: OPA milestones for Scottish Water**

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
OPA	159	159	159	195	232	268	305

## Conclusion

This draft determination has limited the required level of revenue for Scottish Water during the 2006-10 regulatory control period to an increase of 5.51% in

nominal terms. This is a decrease of 4.87% in real terms. In the previous chapter we showed that this had not been achieved to the detriment of future customers since Scottish Water should end the regulatory control period in sound financial health.

In this chapter we have looked at the revenue levels of the companies south of the border and the investment they have been required to deliver. Our analysis demonstrates that the level of revenue set in this draft determination does not cut corners in terms of investment in improving public health and environmental compliance, or in easing development constraints.

The level of revenue that we have set also recognises that Scottish Water has to make progress in the level of service it provides to customers. To this end, we have allowed sufficient operating costs such that there should be a considerable improvement in the overall level of service provided to customers during this regulatory control period.

<sup>60</sup> The levels of service which underpin the Review and the measurement of those levels of service are discussed in more detail in Chapter 14 of Volume 6.

# Section 2: Setting the required level of revenue

## Chapter 6: Interim determinations and the logging up and down process

### Introduction

Regulatory reviews occur at fixed intervals. In Scotland, a Strategic Review of Charges is carried out every four years, while in England and Wales a price review is carried out every five years.

Before the Water Services etc. (Scotland) Act 2005 was passed, the Water Industry Commissioner for Scotland provided advice to Scottish Ministers on charges. Ministers could commission advice whenever they considered it necessary. In this framework, there was no need for a specific process for interim determinations since it was for Ministers to judge when advice needed to be revisited.

The Water Industry Commission has to ensure that Scottish Water delivers the objectives of Ministers at the lowest reasonable overall cost. Scottish Water has to be able to recover the costs of any unexpected expenditure that results from unforeseen circumstances outside management control (rather than from under-performance).

It is important to differentiate between cost problems that arise and are reasonably within the control of managers and those that are genuinely outside the control of management. The regulatory framework needs to be able to respond in an effective and timely way to unexpected costs that are outside the control of management. It is for the Scottish Executive to decide on an appropriate course of action if Scottish Water does not meet the terms of the determination of charges. Our view is that customers should not be asked to pay twice for the same outputs.

This chapter explains that we intend to adopt two mechanisms that have been used by Ofwat in England and Wales. The first is the mechanism for carrying out interim determinations of charge limits between regulatory reviews. The second is the approach of logging up and down at a regulatory review. In adopting these mechanisms we have sought to ensure that we have created a regulatory framework that is sufficiently flexible to allow for significant changes that are outside

the control of management and one that does not create too much uncertainty for customers. We believe that Ofwat's tried and tested process for interim determinations is an appropriate response.

In this draft determination, we forecast the costs that Scottish Water should incur to deliver the Ministers' objectives for the water industry for the next regulatory control period. Our conclusions are based on an assessment of the scope for Scottish Water to improve its efficiency. We believe that if it carries out its functions efficiently and effectively, the revenues that Scottish Water will receive from its customers will be sufficient to cover its costs in full.

The chapter explains:

- what happens if Scottish Water incurs extra costs and they were within the control of management;
- the process of interim determinations and logging up and down and when they are appropriate;
- Ofwat's use of interim determinations and logging up and down; and
- how we have amended the approach to reflect the situation in Scotland.

In general, we intend to replicate as much of the Ofwat process as is possible given the structure of the industry in Scotland. Clearly, we are not able to use licence conditions<sup>61</sup>. However, we consider that it is possible to use the business plans and the determination of charges to highlight issues that may cause an interim determination to be appropriate. We have used Scottish Water's second draft business plan to identify many of the material risks that are outside the control of management.

### Underperformance of the charges determination

The Ministerial Guidance states that the Scottish Executive will not increase its lending to Scottish Water to meet the cost of achieving objectives that have already

<sup>61</sup> Each of the companies south of the border operates under a licence. The licence sets out the company's responsibilities and how prices will be set. It also sets out the mechanism for price changes during a regulatory control period.

been funded through agreed levels of lending and the charge limits set in a determination. As the statement observes, this provides Scottish Water with firm financial limits within which it must operate during the regulatory control period.

If Scottish Water does not meet the level of performance set out in the determination of charges, it will be for Scottish Ministers (as the de facto owner) to decide on an appropriate course of action. In our view, such a course of action should not have an adverse impact on customers.

The process for measuring and reporting on any underperformance would be our annual reports on costs and performance, investment and asset management and customer service. The costs and performance report would highlight the extent of financial underperformance that has accrued. It will be important for Ministers to decide how this should be addressed. During the regulatory control period, there is a possibility that underperformance in an early year could be compensated by out-performance in a future year. However, at the next determination of charges, Ministers would need to decide how the costs of any remaining underperformance should be met. It is important to note that an interim determination of charges would not be an appropriate solution to a problem of this type.

Interim determinations are designed to respond to changes in the level of cost incurred by regulated companies that are outside the control of management.

## Interim determinations in England and Wales

An interim determination is a reconsideration of a company's price limits that could be undertaken between formal price reviews. The reconsideration is carried out in the light of a particular set of circumstances or factors (outside management control) that were not taken into account at the previous Review. Either the company or the regulator may initiate an interim determination.

An interim determination is not a 'mini price review'. The full range of factors that are considered by the regulator at a price review are not considered at an interim

determination. Only those circumstances that have triggered the interim determination will be taken into account.

In England and Wales, the factors that can trigger an interim determination fall into two categories:

- relevant changes of circumstance (RCCs), which are factors that are recognised in the company licences, ie the Instruments of Appointment; and
- notified items (NIs), which are factors that were identified and noted at the last price review, but were not allowed for in the determination of prices.

In addition, some water and sewerage company licences refer to any other circumstance (other than a relevant change of circumstance) that has a material impact on the company. The impact on the company is described in the company licences as:

- “(a) a substantial adverse effect on the Appointed Business or on its assets, liabilities, financial position, or profits or losses, not being one which would have been avoided by prudent management action taken since the transfer date; or
- (b) a substantial favorable effect on the Appointed Business, or on its assets, liabilities, financial position, or profits or losses, being one which is fortuitous and not attributable to prudent management action.”

## Relevant changes in circumstance (RCCs)

RCCs refer to the variations in circumstances, as laid down in Condition B of the company licences, in respect of which Ofwat may make adjustments to price limits.

There are four principal relevant changes in circumstance:

**RCC 1 – new legal requirements:** a new or changed 'legal requirement' affecting companies in their capacity as water or sewerage undertakers. The change could be a legal requirement ceasing to apply, being withdrawn or

not being renewed. New or changed legal requirements include the impact of:

- national legislation;
- regulations made by the Council or Commission of the European Communities;
- undertakings given to the Secretary of State by the Appointed Business, and accepted by the Secretary of State; and
- legal judgements (ie decisions made in courts of law).

**RCC 2 – proceeds from the disposal of land:** a difference in the proceeds of land disposals from that assumed when price limits were last set.

**RCC 3 – failure to take steps:** the Appointee has failed to take steps that the determination assumed it would take in order to comply with a legal requirement. As a result the amount allowed by the determination is substantially greater than the costs incurred, and the purpose has not been otherwise achieved.

**RCC 4 – relative price effects (RPE):** the cost of an allowed capital investment is different from what was assumed at the last price review due to an increase or decrease in capital prices relative to the retail price index (RPI). The indicator of the relevant prices is the Notified Index, which is the change in the construction output price index (COPI) relative to RPI. This relevant change in circumstance applies only to Anglian Water Services Ltd, United Utilities Water plc, Yorkshire Water Services Ltd and Cholderton and District Water Company Ltd.

## Notified items

At a price review, Ofwat may identify items that could have an impact on the companies' turnover. There may be uncertainty about whether the items will materialise, or about the size of any impact if they do. Ofwat can formally acknowledge that these items have not been allowed for, either in full or at all, by recording them as notified items in the determination.

If, as a result of a factor identified in a notified item, actual costs or revenues differ from the levels assumed in the determination, these differences can trigger an interim determination.

In its final determination of price limits for the period 2005-10, Ofwat set out the following notified items:

- A variation (increase or shortfall) in the number of customers requesting meters, free of installation charge, compared to the numbers assumed when the price limits were set.
- Increases in bad debt and the costs of managing debt. At the 1999 price review, this notified item was explicitly linked to the prohibition on disconnection of domestic premises for the non-payment of bills. The text of the notified item has now been modified because Ofwat acknowledges that the prohibition is only one element of the environment in which the water and sewerage companies operate. Ofwat does not expect this notified item to be necessary after 2009.
- Increases in charges for abstractions and discharges to controlled waters. The Environment Agency had consulted upon changes to the abstraction charges scheme, but the outcome remained uncertain at the time of the final determinations and companies could face increases in costs above those assumed in price limits. Charges for discharges to controlled waters could also change as the result of a ruling by the Court of Appeal in 2001, although where such costs are known, they have been incorporated in price limits.
- Charges for lane rental/traffic management, which could result from the Traffic Management Act 2004 or from the conclusion of two trials of a lane rental system. The impact of these potential charges was uncertain at the time of the final determinations, but efficient companies can request a revision to price limits if the impact is significant.
- Increases in the taxation of infrastructure expenditure arising from the introduction of International Financial Reporting Standards (IFRS).

Once again, the impact of this change is uncertain, but Ofwat took the view that companies should be protected from any resulting significant changes in taxation costs. Companies are expected to behave in a tax efficient way and to pursue the solution best designed to minimise the impact of tax changes upon customers' bills.

## Logging up and down in England and Wales

Whereas an interim determination occurs between reviews, logging up and down is an adjustment that takes place at the end of the regulatory control period to reflect differences in cost from the original determination. Such differences will have an impact on prices only in the next regulatory control period.

In June 2002, Ofwat issued a consultation paper on logging up and down<sup>62</sup>. This paper provides a description of the logging up and down process:

“Between periodic reviews there may be changes to the outputs that a company is required to deliver. Where a change, either in terms of additional obligations or the removal of obligations, is material this can trigger an interim determination of price limits. If the change is not sufficient to trigger an interim determination (or if a company or we choose not to seek one), we provide a mechanism for the company to ‘log up’ any reasonable net additional costs to be taken into account at the next periodic review. Similarly reductions in outputs required are ‘logged down’.”

The consultation paper goes on to explain:

“The logging up and down process deals primarily with smaller changes to the items specified in the licence. If the change is not sufficient to trigger an interim determination (or if the company or we choose not to seek one), we provide a mechanism for the company to ‘log up’ any reasonable net additional costs to be taken into account at the next periodic review. Similarly reductions in outputs required are ‘logged down’. The logging up mechanism is not specifically included in companies’

licences although such a mechanism is implied by the need to reflect in the periodic review the actual circumstances faced by companies.

The net amount of logged up capital expenditure taken into account at the 1999 periodic review was around £600m. A similar amount was logged up at the 1994 periodic review. Additional operating costs arising from changes to the quality enhancement programme, which arose in the period 1995-96 to 1999-2000 were £21m.

There are differences in the way the logging up and interim determination processes deal with changes in revenues and costs. The interim determination mechanism treats the changes as if they had been known when we originally set price limits. The logging up mechanism takes into account the financial impacts of the changes from the start of the next price setting period only.

The shortfalls process deals with delays in delivering outputs compared to the assumptions we made when we set price limits. There are differences in the way in which we treat logging down of outputs and shortfalls in outputs.”

## The rationale for interim determinations and logging up and down

Price setting is forward looking. Carrying out a regulatory review involves setting charge caps, or revenue caps, to cover a period of four or five years in the future. The regulatory review process typically begins two years before the end of the current regulatory control period. In Scotland, this means that we have to make judgements about the appropriate level of costs six years hence.

We would only seek to adjust a determination of charges if the circumstances of the adjustment were truly outside the control of management.

Examples of factors that we would consider to be within and outside the control of management are outlined in Table 6.1.

<sup>62</sup> Ofwat publication June 2002, Logging up and down – dealing with shortfalls and outputs and new requirements between periodic reviews: a consultation paper.

**Table 6.1: Examples of factors within and outside the control of management**

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

The regulatory framework in Scotland ensures that improvements in efficiency by Scottish Water will benefit customers.

“

However, managers cannot control all of the company's costs and they cannot influence all of the company's revenues. Customers will benefit if managers are encouraged to improve those things that they can control, either to reduce the company's costs or to secure revenues. In contrast, there is no benefit to customers if managers are punished or rewarded for things that are outside their control.

There are two situations in which regulators might consider taking action between Reviews if their assumptions turn out to be inaccurate. On the one hand it is possible that:

- costs are significantly higher, or revenues are significantly lower, than was assumed at the Review; and
- managers had no control over the causes of the higher costs or lower revenues and they had no way of addressing the issue once it had arisen.

In this case the incentives placed on managers are not improved by forcing the company to operate within the charge caps or revenue caps decided upon at the determination. Instead, there is a case for the regulator to make an adjustment to increase the charge cap or revenue cap.

On the other hand, it is possible that:

- costs are significantly lower, or revenues are significantly higher, than was assumed at the Review; and
- managers had no responsibility for the causes of the lower costs or higher revenues.

In this case there is no justification for allowing the charge caps or revenue caps that were decided upon at the determination. Instead, there is a case for the regulator to make an adjustment to reduce the company's charge cap or revenue cap and to pass the benefit to customers.

If costs are materially different from those forecast in a price review as a result of management action, no change is normally made to the determination.

The interim determination process is important in ensuring that charges reflect costs that have been reasonably incurred.

In the case of an interim determination<sup>63</sup> in England and Wales, Ofwat requires the impact on the company from a change in circumstances to pass a materiality threshold. This ensures that customers do not see continuous small changes in charges relative to those that were agreed at the determination.

Smaller changes in costs and revenues which do not pass the materiality threshold, but which may nevertheless have a significant impact on the company, are dealt with at the next review through logging up and down. This ensures that customers pay charges that reflect costs.

The logging up and down mechanism also has important incentive properties in the regulatory capital value approach to price setting. Managers know that if they fail to make the investments they have promised, and fail to deliver the outputs that customers expect, this will affect the regulatory capital value of the company at the next review. If a company does not deliver the agreed capital programme, the RCV would be adjusted downwards to reflect both the non-delivered items and any timing difference in the delivery. A lower RCV will result in Ofwat

<sup>63</sup> A short-hand acronym 'IDOK' is sometimes used by commentators (interim determination of 'K', price limit).

setting lower prices. Managers therefore have an incentive to deliver the agreed programme of investment and to ensure that the investment provides customers with the outputs that are expected.

## The mechanics of interim determinations in Scotland

The interim determination process will consist of a number of well-defined steps. An important feature of these steps is that they are transparent. We expect that all requests for a change in the charge cap between regulatory reviews will be published. We expect the new Water Industry Commission will publish its assessment of the cost and revenue impacts of the notified items included in this draft determination. In addition, before any charge cap is changed we expect the new Water Industry Commission would consult with industry stakeholders and customers.

This transparency is an important part of the regulatory framework. Regulation provides customers with certainty by setting charge caps for a period of time. If we change charge caps before the next regulatory review we risk causing uncertainty and inconvenience to customers. We also risk undermining the credibility of the charge caps that are set at future reviews.

In order to avoid these problems it must be clear to customers that any changes to charge caps or revenue caps that are made between reviews are not arbitrary. Customers should be assured that any changes are justified and that they are made according to a well-defined process that is based on a clear set of rules.

The steps in our approach to an interim determination will be as follows:

### **Step 1: The interim determination must be initiated.**

Either Scottish Water or the new Water Industry Commission can submit a notice for an interim determination. If either does, the other can submit a counter claim within a limited period. Scottish Water must request an interim determination by 1 September of the year before the charging year for which it is

seeking revised charge limits. The charging year begins on 1 April each year. It follows that, for example, if Scottish Water wished to have its charges revised for April 2007, it would have to apply for an interim determination before 1 September 2006.

### **Step 2: The Water Industry Commission confirms that the factors forming the basis of the claim are within the current notified items.**

Following a request for an interim determination, we expect the Water Industry Commission will confirm that the factors declared fall within the current definitions of notified items. The list of notified items for Scottish Water is more extensive than it is for the companies in England and Wales because Scottish Water does not have a licence. The notified items are set out at the end of this chapter.

Changes that affect the economy in general, for example the April 2003 change in National Insurance contributions, are picked up in the RPI element of the charge cap. A company could not, therefore, use this factor to request an interim determination. If general factors such as this were included in the interim determination, their effect would be double counted.

### **Step 3: For all factors taken together the Commission applies a materiality test.**

We believe that the materiality threshold applied by Ofwat would also be appropriate for the Scottish water industry. This means that the combined net present value (NPV) of all of the factors must be more than 10% of Scottish Water's turnover. However, we would not intend to apply the triviality threshold on individual variances as Ofwat does<sup>64</sup>. This is in recognition of the financial framework within which Scottish Water operates. So, for example, if one factor is worth 4% of turnover, another is worth 6.5% and a third is worth 0.5%, the total effect is 11%. This is sufficient to trigger an interim determination because the sum of all three factors is greater than 10% of turnover.

The test is applied by calculating the NPV of the change in cash flows resulting from the factors.

<sup>64</sup> If the impact of one factor is less than 1% of a company's turnover, Ofwat does not include that factor in the interim determination calculations.

- If costs are higher than forecast, the difference between forecast costs and actual costs is estimated. In the case of operating costs we would estimate the difference over a ten-year period and discount future costs at Scottish Water's allowed rate of return. In the case of capital costs the difference would be estimated for a period of 15 years from when the investment was made and discounted at Scottish Water's allowed rate of return.
- If revenues are lower than forecast, the difference between forecast revenues and actual revenues is estimated. The difference is estimated for a period of 15 years from when revenues fell below the forecast level. Again, this would be discounted at Scottish Water's allowed rate of return.

Effectively an interim determination could be triggered if there is more than about a £12 million annual change in costs that is caused by factors outside the control of managers.

#### **Step 4: Revised charge limits are calculated.**

If the materiality threshold is passed, we will calculate the required change to charges to recover the additional costs or allow for the reduction in costs. We will make our decision on changes to charge limits within three months of a request.

#### **Step 5: Scottish Water may appeal to the Competition Commission.**

If Scottish Water does not accept our assessment it may refer the issue to the Competition Commission.

## **Logging up and down in Scotland**

We intend to adopt the broad principles of logging up and down that are used in England and Wales, but to adapt these to the financial framework within which Scottish Water operates. In its response to our methodology consultation, Scottish Water responded favourably to the idea of introducing logging up and down and interim determinations. Scottish Water also asked if the new Commission could provide it with an

annual statement of the items that had been noted as being outside the regulatory contract.

We agree with this suggestion. We intend to ask Scottish Water twice a year to identify any factors (outside the control of management) that have had an impact on its costs (either increasing or decreasing costs). The new Commission would review these claims and within three months provide Scottish Water with a statement of its view. The Commission may also identify some factors that were not raised by Scottish Water.

If these factors reached the threshold for an interim determination then either Scottish Water or the new Commission could initiate the process described above. In the interim, we suggest that Ministers should be prepared to increase their lending to Scottish Water by the value of the additional costs that Scottish Water has incurred. As a maximum, Scottish Ministers would have to retain a reserve of £40 million from the lending that they were prepared to make available to the industry to meet their objectives. In Chapter 4 we explained that some £222.6 million of borrowing that Ministers were prepared to make available was not required. We noted that Ministers could reasonably redeploy all bar £40 million of this borrowing. Scottish Ministers should retain this £40 million and should only release this lending after the new Water Industry Commission has published its assessment of Scottish Water's claims of additional costs and agreed that additional lending was an appropriate response. We would also note, however, that there appear to be quite ambitious assumptions on the outputs that may be required in the funded investment programme, which may reduce (perhaps entirely) the need for this reserve public expenditure.

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.

## **Notified items**

The notified items for this draft determination are set out in Table 6.2.

**Table 6.2: Notified items for the Strategic Review of Charges 2006-10**

Notified items
Inflation rates (COPI and CPI)
The definition of retail activities in the regulatory accounts
Changes in ministerial objectives for the industry
Any change in legislation that has an impact on Scottish Water's statutory obligations
Changes in the numbers of metered customers from the 2004-05 baseline
Contractual status of overhang and whether costs will increase by inflation
Corporation tax
Outcome of strategic drainage studies of the catchments for Meadowhead, Stevenston and Portobello.

## Conclusion

Interim determinations and the logging up and down process act as an important safeguard for customers and for Scottish Water. They help to reduce operating risk. They also help ensure that the regulatory contract contains a tight budgetary constraint, so customers pay no more than is necessary and reasonable given the objectives for the industry set by Ministers. As such, Scottish Water should have a clear incentive to deliver the outputs included in the regulatory price settlement.

It is important to differentiate between the need for a regulatory framework to be sufficiently flexible to deal with unexpected events that are outside the control of a management and the need for an owner to manage under-performance relative to a determination of charges.

The framework that we have outlined in this chapter should ensure that Scottish Water can be confident that funds will be available to deal with any unexpected costs that they could not control. This framework is essentially the same as that which exists south of the border.

If Scottish Water under-performs the terms of the determination of charges, this is a matter that should be resolved between Scottish Water and its owner, the Scottish Executive. In our view, any such under-performance should not adversely impact the level of charges faced by customers.

# Section 2: Setting the required level of revenue

## Chapter 7: How we propose to deal with out-performance by Scottish Water

### Introduction

We discussed earlier how all of the UK economic regulators use an incentive-based approach to determining charges. Under this approach, the regulator analyses the scope for improvement in performance of the regulated company and sets appropriate charge caps. A determined management may out-perform the targets and, in doing so, will benefit shareholders (for private companies) or customers (as in the case of the not-for-dividend Welsh company, Glas Cymru). However, such out-performance will also raise the level of performance that is expected at future Reviews. It is this 'ratchet' effect that has resulted in the significant efficiency gains that have taken place south of the border.

A key element of incentive-based regulation is ensuring that the regulated company faces a tight budgetary constraint. It is this pressure that will force management to seek to improve efficiency.

This chapter outlines how we have developed our use of incentive-based regulation in our work in promoting the interests of customers of the public sector water industry in Scotland.

### The regulatory contract

The 2006-10 determination of charges should be seen as an agreement between customers and Scottish Water about the level of service that will be provided during the period.

In Chapter 4 we outlined the level of revenue that we believe Scottish Water requires to deliver ministerial objectives and provide an improving level of service to customers. This level of revenue is sufficient to ensure that the Ministers' 'essential' and 'desirable' objectives for the industry can be met in full. We set out the likely profile of investment in Volume 5.

We have emphasised that the level of revenue allowed for reflects our expectation that customer service and asset performance (including leakage) would improve

towards the current average level of performance south of the border. In Volume 6 we set out the improvement in the level of customer service performance that we expect. Scottish Water's customer service performance will be measured using the overall performance assessment (OPA) system that Ofwat has developed.

### Out-performance of the regulatory contract

In the private sector each utility has a licence to operate which requires it to meet standards of operation that are considered appropriate in terms of social, environmental and public health objectives. The economic regulator takes account of all such issues in determining the appropriate level of charges. This determination defines the regulatory contract for a number of years.

Under the traditional approach to incentive-based regulation, a business has an incentive to meet its targets as efficiently as it can manage because it is permitted to retain the difference between the revenue from the limit on charges and the actual cost of meeting its targets. This can increase the dividends available to shareholders. The benefit to the customer is that charge limits in the following regulatory control period are set to reflect any extra efficiency gains secured by the business in the preceding period. Over time, this approach delivers higher standards at lower cost than does regulation based on setting higher, more aspirational targets.

In the private sector, regulators rely on shareholders to exert pressure on management to outperform efficiency targets. More recently, however, the creation of the not-for-dividend companies Glas Cymru and Network Rail has led regulators to consider the impact of incentive-based regulation on companies that do not have shareholders.

The founders and senior management of Glas Cymru made a commitment to create a reserve with the proceeds of out-performance. They also committed themselves to using some of the proceeds from out-performance to provide rebates to customers within the regulatory control period. Rebates were paid as soon as the company was in a strong financial position. Glas

Cymru's customers have enjoyed two such rebates. We believe that from a customer perspective there is much to commend this approach.

In this draft determination, we have built on Glas Cymru's approach while taking full account of Scottish Water's particular circumstances. We set out our approach to handling out-performance in our second open letter to Scottish Ministers. We have set charges that are consistent with Scottish Water delivering the required level of service at the lowest reasonable overall cost. We have assessed that a capital expenditure programme of £2,100 million should be sufficient to meet the Ministers' objectives, and that there is scope for Scottish Water to achieve the objectives at a lower cost.

Our view is that Scottish Water should out-perform the minimum level of performance that we have required in this draft determination. We would expect that Scottish Water would want to accept a lower charge cap in future years if it has been able to out-perform its regulatory contract.

Clearly it is important that transparent and effective incentives are put in place to encourage Scottish Water to deliver the required level of performance at this lower cost. This will require the Scottish Executive, Scottish Water and the quality regulators to establish satisfactory ways to measure delivery of specified outputs. Our views on Scottish Water's financial and customer service performance are set out in this draft determination. The success of Scottish Water's management should be judged by the extent to which it delivers these outputs so that it can forego some of the revenue, which we allow in the determination.

The detail of any incentives for Scottish Water's managers would be a matter for the Scottish Executive and Scottish Water to settle in the particular context of a publicly owned business. Our view is that, from a customer perspective, any approach would need to be founded on the principle of bonuses only being paid once Scottish Water's performance had exceeded the minimum acceptable level of performance set in the final determination of Scottish Water's charges. In our view, there will need to be a direct and transparent link,

published in advance, between the bonuses available to senior management and improvements beyond the minimum acceptable level of performance.

It should be borne in mind that any unused charge cap can be brought forward to a future year's charge cap were it to be required. We would comment on the scope for Scottish Water to forego some part of its charges cap in our annual performance reports. The scope to forego part of the charges cap would require not just that Scottish Water met the financial terms of the determination of charges, but also its investment delivery obligations and the requirement to improve the level of service to customers.

## Scottish Water's response to our second open letter

In its response to our second open letter to Ministers, Scottish Water agreed that incentive-based regulation was appropriate in the Scottish context. It expressed its concerns, however, that there should be an appropriate mechanism for interim determinations and that management should have the opportunity to out-perform the regulatory settlement. Given that we have adopted the Ofwat approach to assessing the scope for efficiency and to interim determinations, we consider that Scottish Water's concerns on these issues are being addressed.

In its response, Scottish Water asserted that our proposal that out-performance should reduce future charge caps would limit the opportunities for it to let longer-term contracts. We are not persuaded by this argument. The approach that is taken by Glas Cymru does not seem to have affected the ability of Welsh Water to let long-term contracts. It is not clear why a management would seek to enter a contract that would not allow it to meet its regulatory targets. If such a contract *guaranteed* future out-performance at the expense of under-performance in the first year or two, there is no reason why this could not be taken into account in the annual assessment of performance.

Scottish Water also suggested that any out-performance should be re-invested to improve the level of service that is provided to customers. In principle, we would have no problem with this suggestion – provided that Ministers agreed to change their objectives for the industry and that the incremental benefits of this investment were clearly defined in advance and measurable using the OPA methodology.

Scottish Water has argued that it is financially less strong than Welsh Water and therefore it would need to build up its reserves before it could forego any part of its revenue cap. We are again not persuaded by this line of argument. Scottish Water’s financial ratios during this regulatory control period would appear to be healthier than those of Welsh Water. Welsh Water’s financial ratios for 2003-04 are set out in Table 7.1.

**Table 7.1: Welsh Water’s financial ratios in 2003-04**

Financial ratio	Value
Cash interest cover	1.60
Adjusted cash interest cover	0.72
Funds from operations/debt	4.74%
Retained cashflow/debt	4.09%
Net debt/RCV	83.40%

Scottish Water asserts that it would be useful to develop a financial buffer as an insurance against operational shocks. Proposals on this were included in our letter. We suggested that it would be useful to build up a reserve (held in index linked gilts) that could be used in the event of an operational shock. Such a reserve should, however, only be accessed with the prior agreement of the new Water Industry Commission. It is not a reserve which should be accessed at the sole discretion of management.

In its response to our open letter, Scottish Water makes reference to the considerable financial buffer that Welsh Water has developed. This ‘financial buffer’ is somewhat different to that which we proposed in our second open letter. In the case of Welsh Water, the financial buffer is the unleveraged portion of the RCV (ie the extent to which the RCV exceeds the outstanding debt). In fact, Scottish Water’s potential extra borrowing capacity, measured in this way, is greater than that of Welsh Water. The difference is that Welsh Water has access to an extra

credit line if it encounters problems and Scottish Water has no such commitment from the Scottish Ministers. However, if Scottish Water encounters a problem that is outside the control of management, the regulatory framework in Scotland will be able to respond just as effectively as the framework in England and Wales. If the problem is within the control of management, then it is a matter for the Scottish Executive to resolve.

**Table 7.2: Comparison of Scottish Water and Welsh Water’s situation if there is an unexpected cost event**

	Scottish Water	Dwr Cymru
Managers can control	Regulator will provide strong incentives to prevent customers from paying for failure	Regulator will provide strong incentives to prevent customers from paying for failure
	Ability to outperform other regulatory assumptions to compensate	Ability to outperform other regulatory assumptions to compensate
	Additional injection of capital required. Onus would be on Scottish Ministers to provide the necessary funding, although there is no guarantee that this would be made available	Additional injection of capital required. Banks required to provide funding as part of pre-agreed credit facility.
Managers cannot control	Debt:RCV ratio would worsen, reducing financial strength and Scottish Water would be ultimately answerable to Parliament through the Scottish Executive	Debt:RCV would worsen, reducing financial strength and the market’s view of the company
	IDOKs available to company if effect is material	IDOKs available to company if effect is material
	Logging up/down at the following Strategic Review of immaterial downside	Logging up/down at the following Strategic Review of immaterial downside
	No effect on the long-term financial strength of company	No effect on the long-term financial strength of company

The suggestion in Scottish Water’s second draft business plan that it should raise £140 million additional revenue from customers in order to manage unforeseen risks of a broadly similar magnitude would be the most expensive possible response to the management of operational risks in the Scottish water industry. In effect, this proposal requires customers to pre-pay in the event that some unforeseen events (some within the control of management) occur.

## How our approach to out-performance would work

Under our proposals, we would expect the new Water Industry Commission to take two steps to confirm that Scottish Water has met the terms of its regulatory contract:

- The Commission would assess whether the minimum acceptable levels of performance have been achieved. This would include the levels of customer service, environmental and public health compliance and the costs that underpin the charge caps set out in the determination.
- It would review performance in delivering the capital programme, indicating any variance from the agreed delivery profile (including any implications for public expenditure).

The Commission's annual costs and performance report would set out Scottish Water's financial performance for that year. This would reveal whether Scottish Water had achieved the minimum acceptable level of performance. It would also identify the scope that Scottish Water has to reduce charge caps in the subsequent year. As an example, the costs and performance report 2006-07 (the first year of the next review period) will be published in October 2007<sup>65</sup>. This would allow Scottish Water sufficient time for the 2008-09 charges scheme to reflect lower charge caps than indicated in the determination. Scottish Water should only seek to accept a lower charges cap if it has been successful in achieving the required level of service and environmental and public health compliance at a lower cost than set out in the determination of charges.

The annual customer service report will set out the Commission's overall performance assessment, and will report on Scottish Water's performance relative to the milestones outlined in the final determination.

The annual investment and asset management report will set out the Commission's assessment of the delivery of the planned capital programme. The Commission will consult the Scottish Environment Protection Agency and the Drinking Water Quality Regulator in preparing the report to ensure that they are content with the level of compliance achieved by Scottish Water relative to their expectations at the start of the review period.

If Scottish Water were to reduce its operating costs by £10 million more than was included in charge limits, it could return this £10 million (less an appropriate allowance for employees' bonuses<sup>66</sup>) to customers in the form of a lower charge cap in the subsequent year.

If Scottish Water delivers its planned capital programme at £10 million less than was included in charge limits, the regulatory capital value would be adjusted. A proportion of the savings (again after an allowance for employees' bonuses) would be available for further investment (for example in improving customer service), a further proportion could be made available for spend to save purposes and the remainder (after adjusting for operating costs etc) could be returned to customers. We would adopt the same approach as Ofwat uses to calculate the extent of capital expenditure out-performance. We would also make similar adjustments to the RCV to reflect this better than expected performance.

We would, however, note that it is likely to be difficult – especially in the early years of the regulatory control period – to be certain that Scottish Water would out-perform in capital expenditure. Therefore, unless there are compelling reasons to review performance on capital expenditure during the regulatory control period, it is probable that performance in capital expenditure would be best addressed at the next determination of charges.

## Conclusion

This chapter has outlined how we intend to measure and report on out-performance. It is important to regard the determination of charges as a regulatory contract. Scottish Water is allowed to collect a level of charges from its customers that is sufficient (together with the available borrowing) to deliver the Ministers' objectives for the water industry. It should therefore deliver these benefits to charge payers.

We believe that Scottish Water has the same scope to out-perform this draft determination as would be available to any company regulated by Ofwat. In our view, it should take a lead from Welsh Water and return any such out-performance to customers by accepting less revenue in a future year. Scottish Water certainly should have the financial strength to make this a prudent course of action. For this approach to work, managerial incentives should be linked to out-performance of the determination of charges in a direct and transparent way.

<sup>65</sup> In light of the significance of the costs and performance report, it will be made available to Scottish Water well ahead of publication.

<sup>66</sup> We would expect this allowance to be agreed between the Remuneration Committee of the Scottish Water Board and the Scottish Executive.

# Section 2: Setting the required level of revenue

## Chapter 8: Risk analysis

### Introduction

In this chapter we outline the risk analysis that we have completed to support our conclusions on the level of revenue that Scottish Water requires to meet the objectives set by Ministers and to deliver an improving level of service to customers<sup>67</sup>.

The analysis distinguishes between factors that are within the control of management and those that are outside managerial control. If Scottish Water were to fail to meet the terms of the draft determination because of factors that are within its control, this would be a matter for the Scottish Ministers to resolve. In our view, the resolution of such an outcome should have no impact on customers. If factors outside the control of management were to arise, there would be scope for an interim determination of charges, assuming that the thresholds to trigger an interim determination are met<sup>68</sup>. Of course, an interim determination of charges can reduce as well as increase customers' charges.

We have suggested that a maximum of £40 million should be held in reserve by the Scottish Executive Environment & Rural Affairs Department (out of the £224 million of unused public expenditure). These funds would be used to manage circumstances where unforeseen events occur that are outside managerial control, but which are not sufficiently material to trigger an interim determination. We would, however, note that there appear to be some quite ambitious outputs in the funded investment programme which, if not required, may reduce or obviate entirely the need for this reserve of public expenditure<sup>69</sup>.

Our risk analysis seeks to identify the likelihood that the Scottish Executive could face an incidence of under-performance by Scottish Water that was within the control of management (and hence an interim determination would not be appropriate). It also seeks to identify the risk that an interim determination may be required.

In this draft determination we have made a number of assumptions. These have been set out in previous chapters. The most material of these assumptions are

set out in Table 8.1. These are separated into factors that are within and those that are outside the control of management.

**Table 8.1: Factors inside and outside management control**

Within management control	Outside management control
Operating costs: <ul style="list-style-type: none"> <li>• efficiency</li> <li>• efficiency and incidence of new operating costs</li> <li>• efficiency and incidence of additional baseline operating costs</li> </ul>	Consumer prices index (CPI)
Capital expenditure: <ul style="list-style-type: none"> <li>• efficiency</li> <li>• scope of agreed programme</li> </ul>	Construction outputs pricing index (COPI)
	Exogenous shocks: <ul style="list-style-type: none"> <li>• change in outputs required</li> <li>• changes in legislation</li> <li>• other factors likely to trigger an interim determination</li> </ul>

We have measured exogenous shocks with reference to the frequency and outcome of interim determinations that have taken place south of the border. In many ways this is a conservative approach since it reflects the different statutory framework of England and Wales. At price reviews, Ofwat is likely to exclude uncertain, ill-defined or poorer value for money investment projects which the quality regulators or Government may have found to be desirable. These projects occasionally reappear as a result of interim determinations.

In Scotland, the new Commission is obligated to fund the objectives set by Scottish Ministers for the industry. In this draft determination we have funded all the 'essential' and 'desirable' objectives and it would, therefore, seem less likely that new investment outputs are identified during the regulatory control period.

Interim determinations are also frequently triggered south of the border because household customers switching to metered tariffs can have a significant impact on revenue. Such switching is unlikely in Scotland because of the structure of tariffs.

We have not included in our risk analysis the impact of the allowed for cost of capital or of interest rates. The

<sup>67</sup> In the Strategic Review of Charges 2002-06, we also conducted a risk analysis to support the advice on charges that we provided to the Scottish Ministers.

<sup>68</sup> For more information about the interim determination process see Chapter 6.

<sup>69</sup> For example: the funding for lead pipe removal.

financial impact of the allowed cost of capital has to be considered in conjunction with the regulatory capital value and the constraint that we have set charges such that Scottish Water's revenue in 2009-10 complies with all of the Ofwat cash-based financial ratios. Other inputs in the financial model compensate for any potential variance in the allowed rate of return.

Our initial intention was to include an analysis of the potential impact of interest rates. Our analysis showed, however, that this was not likely to be material. There are two reasons for this. First, we have linked our charge caps to the rate of retail price inflation (RPI). There is more variability in nominal interest rates than in real rates. The link between charge caps and the RPI insulates Scottish Water from nominal interest rate changes. Secondly, when we examined the variability in real interest rates over the past few years, our analysis suggested that there was approximately a 90% chance that the real interest rate would be within a half of one per cent of the estimate that we have used in this draft determination. The impact of such variability is not likely to exceed a million pounds in any one financial year. We do not consider that this is a material risk<sup>70</sup>.

We set out below what we consider to be reasonable ranges for the five areas that our risk analysis has sought to test, namely:

- operating costs;
- capital costs;
- COPI inflation;
- CPI inflation; and
- exogenous shocks.

It then describes the analysis that we have completed and presents the results. The full results of our risk analysis are set out in Appendix 14.

## Risk profiles : Controllable costs

### Operating costs

The risk profile that we have developed for the total allowed for level of operating costs has taken account of the scope for efficiency, increases in base costs and the required level of new operating costs.

Our analysis of the scope for efficiency assumes that the chance that Scottish Water would close less than 40% of the assessed efficiency gap in 2003-04 is 5%<sup>71</sup>. In its business plan, Scottish Water states that it expects to improve its operating expenditure efficiency significantly in 2004-05 and in 2005-06. Its forecasts suggest that it should close more than 50% of the assessed gap by 2005-06 from the 2003-04 baseline. Our assumption therefore allows, prudently, for the possibility of a deterioration in Scottish Water's performance from 2006-07. Conversely, we also assume that the chance that Scottish Water closes more than 90% of the gap is 5%. On this plausible assumption, Scottish Water would become an above average water and sewerage provider by 2009-10, if the companies in England and Wales do not outperform Ofwat's targets.

Table 8.2 and Figure 8.1 show the resulting risk profile.

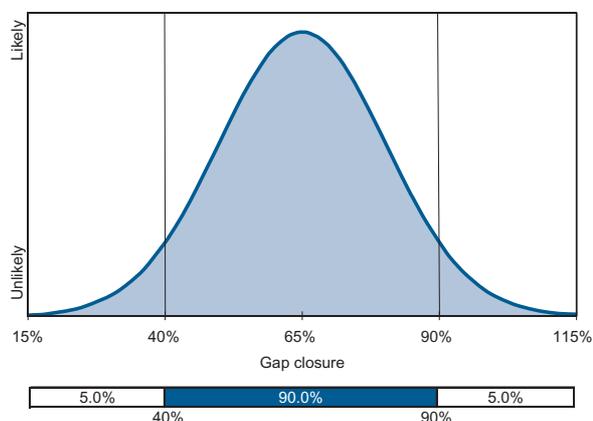
**Table 8.2 Assumed mean and standard deviation of risk profile for closure of the operating expenditure efficiency gap**

	Gap closure
Mean gap closure	65%
Standard deviation	15.2%
5% cumulative probability point	40%
95% cumulative probability point	90%

<sup>70</sup> Scottish Water borrows about £200 million each year – a half of one percent would be equivalent to £1 million a year.

<sup>71</sup> This assumes that Scottish Water operates in a robust governance framework and benefits from appropriate incentives.

**Figure 8.1: Risk profile for closure of the operating expenditure efficiency gap**



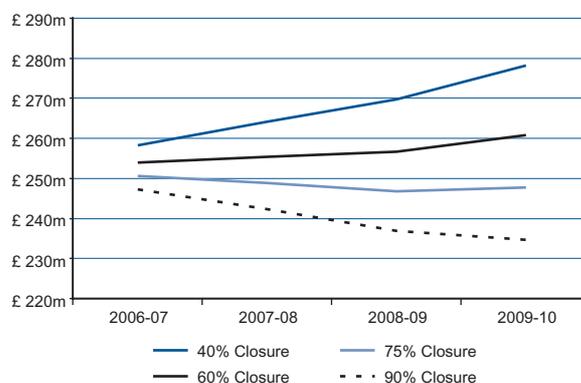
Our risk profile for closure of the operating expenditure efficiency gap determines the level of operating expenditure in each year. Table 8.3 illustrates the impact of different degrees of closure of the efficiency gap for operating expenditure for each year of the regulatory control period.

**Table 8.3: Impact of closure of the operating expenditure efficiency gap on levels of operating expenditure**

Gap closure	2006-07	2007-08	2008-09	2009-10
40%	£258.3m	£264.1m	£269.7m	£278.2m
60% (assumed in price limits)	£253.9m	£255.4m	£256.6m	£260.8m
65% (mean in risk analysis)	£252.8m	£253.2m	£253.3m	£256.5m
75%	£250.6m	£248.9m	£246.8m	£247.8m
90%	£247.3m	£242.3m	£237.0m	£234.7m

Figure 8.2 shows the same information as Table 8.2, in graphical form.

**Figure 8.2: Impact of closure of the operating expenditure efficiency gap on levels of operating expenditure**



We have assumed a 5% chance that increases in base operating expenditure and new operating expenditure could be less than 50% of the allowed level in each year. We have also assumed a 5% chance that these costs could be more than 50% above the level that we have allowed. This range is intended to reflect Scottish Water’s plausible range of performance in controlling these additional costs.

Table 8.4 sets out the ranges for these costs that result from our assumptions.

**Table 8.4: Assumed risk profile for increase to base operating expenditure plus new operating expenditure**

	2006-07	2007-08	2008-09	2009-10
Allowed level of increase in base and new operating costs <sup>72</sup>	£10.4m	£12.8m	£14.8m	£19.9m
Mean change from allowed level	£0.0m	£0.0m	£0.0m	£0.0m
Standard deviation	£3.2m	£3.9m	£4.5m	£6.0m
5% cumulative probability point: change from allowed level	-£5.2m	-£6.4m	-£7.4m	-£9.9m
95% cumulative probability point: change from allowed level	+£5.2m	+£6.4m	+£7.4m	+£9.9m

<sup>72</sup> The allowed for level of operating costs is after deducting efficiency savings.

Our risk analysis therefore combines the effects of uncertainty in the degree of closure of the efficiency gap with uncertainties in the levels of increases in base operating expenditure and of new operating expenditure.

### Capital costs

The risk profile for capital expenditure reflects the scope to improve the efficiency and effectiveness of the delivery of the capital programme. It also reflects the extent to which Scottish Water could conceivably under-perform.

The size of the capital programme is uncertain at this stage. We have adopted the ranges for capital investment discussed in Chapter 14 of Volume 5. In setting charges, we adopted a figure for capital investment towards the upper end of this range and assumed that Scottish Water would deliver, but not out-perform, the minimum levels of improvement that we have set. We noted in that chapter that there was only a 2% chance that the investment programme should exceed the £2,100 million<sup>73</sup> that we assumed in setting charge caps.

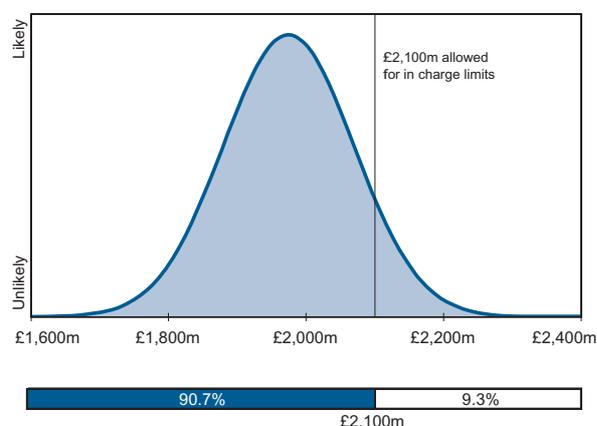
However, the effectiveness of Scottish Water’s delivery of the programme is also uncertain and there is scope to out-perform or under-perform the levels of performance that we have adopted in setting charge caps. We need to take account of this additional uncertainty. Our analysis therefore assumes, prudently, that there is a 5% chance that Scottish Water would make no further progress from its expected level of efficiency in 2006-07<sup>74</sup>. This would imply a reduction in capital costs of only 8% over the entire investment programme. Conversely, we also assume that there is a 5% chance that Scottish Water could achieve very significant out-performance through strategic asset planning, asset rationalisation, a risk-based approach and other improvements. Our analysis assumes that there is a 5% chance that this could reduce total capital costs by more than 28%.

The combination of uncertainties in the size of the investment programme and the effectiveness of its delivery by Scottish Water results in the risk profile for capital expenditure as set out in Table 8.5 and illustrated in Figure 8.3.

**Table 8.5: Assumed mean and standard deviation of risk profile for allowed capital expenditure<sup>75</sup>**

Mean	£1,974m
Standard deviation	£94.9m
5% cumulative probability point	£1,818m
95% cumulative probability point	£2,131m

**Figure 8.3: Risk profile for allowed level of capital expenditure**



As noted earlier, our charge caps assume a capital investment programme of £2,100 million. Even after allowing for the possibility of under-performance by Scottish Water, the probability of exceeding this allowance is still only 9%.

### Risk Profiles - costs outside management control

#### COPI inflation

The risk profile that we have developed reflects the observed variability of COPI. We have compiled a distribution that reflects the changes in the level of COPI since the Bank of England became responsible for setting interest rates. We have therefore adopted the risk profile that is set out in Table 8.6 and illustrated in Figure 8.4.

We have looked carefully at the correlation between RPI and COPI. Our conclusion is that there is evidence that over a long time horizon (say 10-20 years) COPI and RPI will not differ greatly. There is, however, considerable

<sup>73</sup> Capital investment for the period 2006-07 to 2009-10, at 2003-04 prices, including the undelivered portion of Quality and Standards II.

<sup>74</sup> We assume for the purposes of this risk analysis that Scottish Water’s level of capital cost efficiency in 2006-07 will show an 8% improvement, compared with its cost base submission for this Strategic Review. This is consistent with Scottish Water’s second draft business plan projections for 2006-07.

<sup>75</sup> Costs are in 2003-04 prices.

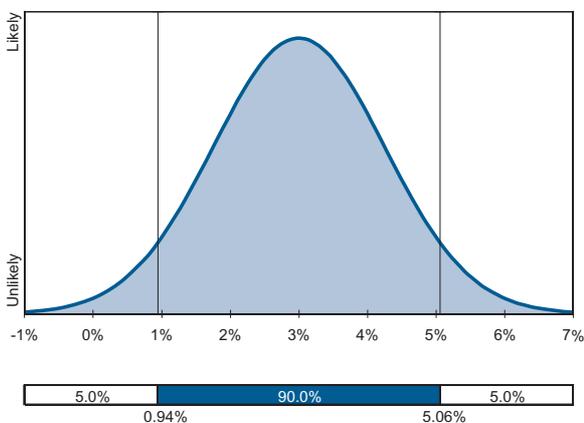
volatility in the short term and some volatility over the length of a regulatory control period.

It is therefore not straight forward to measure relative changes in COPI against RPI. We have made the conservative assumption that COPI may vary in line with observed trends since 1998, but that RPI will not change. This increases the risk that an interim determination will be required.

**Table 8.6: Assumed mean and standard deviation of risk profile for annual change in the level of COPI**

Mean	3.00%
Standard deviation	1.25%
5% cumulative probability point	0.94%
95% cumulative probability point	5.06%

**Figure 8.4: Risk profile for assumed annual change in the level of COPI**



It is important to note that changes in COPI would be likely to trigger an interim determination if the materiality threshold were to be breached. The impact of COPI is largely outside the control of management if the capital programme is being delivered on time. Delays to the capital programme could bring the impact of COPI within the factors considered (for regulatory purposes) to be within the control of management.

The risk profile that we have adopted covers a wide range of potential outcomes. This analysis should, therefore, have covered the plausible scope for uncertainty in this draft determination.

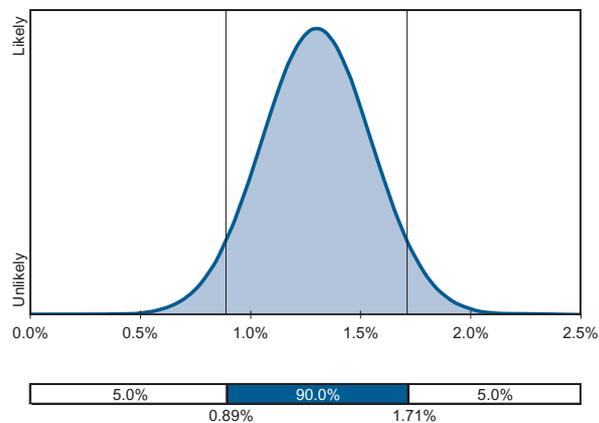
### CPI inflation

The risk profile that we have developed for inflation reflects the observed variability of the CPI relative to RPI. We have compiled a distribution that reflects the changes in the level of CPI during the last seven years. We have therefore adopted the risk profile that is set out in Table 8.7 and illustrated in Figure 8.5.

**Table 8.7: Assumed mean and standard deviation of risk profile for annual change in the level of CPI**

Mean	1.30%
Standard deviation	0.25%
5% cumulative probability point	0.89%
95% cumulative probability point	1.71%

**Figure 8.5: Risk profile for assumed annual change in the level of CPI**



It is important to note that changes in CPI, as with COPI, would be likely to trigger an interim determination if the materiality threshold were to be breached. The impact of CPI is largely outside the control of management.

The risk profiles that we have adopted cover a wide range of potential outcomes. This analysis should, therefore, have covered the plausible scope for uncertainty in this draft determination.

## Exogenous shocks

The risk profile that we have developed reflects the observed outcomes of interim determinations south of the border. We have adjusted these to take account of the different sizes of the companies that have received an adjustment to their price limits. In the period from 1998 to 2004, there were eight interim determinations for the water and sewerage companies. The probability of any company having an exogenous shock that is material enough to trigger an interim determination in any year was therefore 11.4%<sup>76</sup>. This corresponds to a probability of 38% for a given company in a regulatory control period<sup>77</sup>. We have assumed an annual 11.4% risk of exogenous shock in our analysis<sup>78</sup>. We have adopted a uniform distribution for the size of this shock. This distribution has a minimum of £30 million and a maximum of £220 million. This reflects the observed range of cost impacts that Ofwat has allowed in interim determinations, adjusted for inflation and for Scottish Water's level of revenue. Our assumptions mean that there is an equal likelihood of a shock of, say £40 million as of, say, £100 million or £200 million.

Again, it is important to note that exogenous shocks would be likely to trigger an interim determination if the materiality threshold were to be breached.

The uniform risk profile that we have adopted covers a wide range of potential outcomes. This analysis should, therefore, have covered the plausible scope for uncertainty in this draft determination.

## Analysis

We have used the profiles described above in a standard risk analysis software package<sup>79</sup>. We assessed the profile combinations set out in Table 8.8.

**Table 8.8: Profile combinations (management controlled) considered in the risk analysis**

Risks considered	Dependency
Total allowed operating costs only	Assumes no risk in delivering the investment programme
Total allowed capital expenditure only	Assumes no risk in the level of operating costs incurred
Total allowed capital expenditure and total allowed operating costs	Dependent
Total allowed capital expenditure and total allowed operating costs	Independent

The choice of dependent or independent profiles reflects whether the risk of out or under-performance has a common cause (dependent) or alternatively that the factors are independent.

We have also looked separately at those factors that could trigger an interim determination (ie they are outside the control of management). We assessed the profile combinations set out in Table 8.9.

**Table 8.9: Profile combinations (outside management control) considered in the risk analysis**

Risks considered	Dependency
COPI	Assumes no risk in CPI or of exogenous shocks
CPI	Assumes no risk in COPI or of exogenous shocks
Exogenous shocks	Assumes no risk in CPI or COPI
COPI and exogenous shocks	Assumes no risk in CPI; independent
CPI and exogenous shocks	Assumes no risk in COPI; independent
CPI and COPI	Assumes no risk in exogenous shocks; independent
COPI, CPI and exogenous shocks	Dependent, exogenous shocks; independent
COPI, CPI and exogenous shocks	Independent

## Results of our risk analysis (costs that are within the control of management)<sup>80</sup>

We have calculated the likelihood that Scottish Water should be in a position to deliver rebates to customers from the level of charge caps that we have set in this draft

<sup>76</sup> This probability is calculated as 8 interim determinations / (10 companies x 7 years) = 11.4%.

<sup>77</sup> This assumes four opportunities for an interim determination in a five year regulatory period. This is calculated as 1 - ((1-0.114)<sup>4</sup>) x 100%

<sup>78</sup> The risk assessment for a given year assumes that no exogenous shocks have occurred in previous years. However, if an interim determination were to be triggered in say 2007-08, then the risk of a further interim determination being required in 2008-09 or 2009-10 would be negligible.

<sup>79</sup> We have used the Palisade Corporation's @RISK Risk analysis and simulation add-in for Microsoft® Excel, Version 4.5.

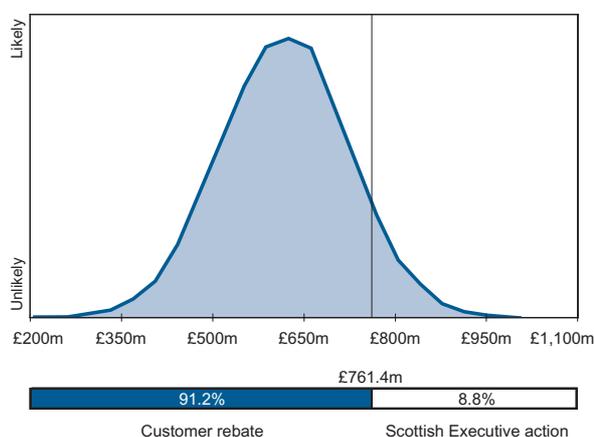
<sup>80</sup> Our analysis in Volume 5 suggested that a capital programme of £2.1 billion post-efficiency was reasonable. The risk analysis assumes that the capital programme is £2.1 billion and that Scottish Water operates in an effective regulatory framework with appropriate incentives to perform.

determination. The converse is the potential requirement for the Scottish Executive to decide how to address under-performance relative to the draft determination.

We set out the results of combining the operating and capital cost uncertainties (the last item in Table 8.8) in Figure 8.6. This shows the expected position in 2009-10. The results for the years 2006-07 to 2008-09 are set out in Appendix 14. Figure 8.6 shows that the most likely outcome is that Scottish Water would require a cumulative total of £618 million of new debt by the end of 2009-10. This outcome would be consistent with rebates to customers during the regulatory control period, since the allowance in charge limits for new debt is £761 million (assuming that Scottish Water does not out-perform our assumptions). The analysis also indicates that the risk of the Scottish Executive having to address a failure to perform at least in line with the draft determination is low, at less than 9%. This is a very low risk given that our modelled scenarios included significant under-performance in operating and capital costs.

In our view this highlights just how stable and predictable the water industry is. As we will see when we look at the impact of exogenous shocks and inflation [from which Scottish Water is fully protected because of the interim determination process and our ring-fenced debt buffer], the main financial risks are borne by customers.

**Figure 8.6: Impact of operating and capital expenditure risks and inflation risks (independently) on the likelihood of customer rebates or of Scottish Executive action**



In our methodology consultation<sup>81</sup>, we said that we intended to extend our risk analysis to include the impact on Scottish Water’s compliance with the financial ratios. This is shown in Table 8.10. The results show small risks of breaching target ratios over the regulatory control period.

**Table 8.10: Scottish Water’s compliance with targeted financial ratios**

	Target	Probability of non-compliance			
		2006-07	2007-08	2008-09	2009-10
Cash interest cover (funds from operations/gross interest)	Greater than 2.25	<0.1%	<0.1%	<0.1%	<0.1%
Adjusted cash interest cover (funds from operations less capital charges/gross interest)	Greater than 1.20	<0.1%	<0.1%	<0.1%	<0.1%
Funds from operations/debt	Greater than 13%	<0.1%	<0.1%	<0.1%	8.7%
Retained cash flow/debt	Greater than 7%	<0.1%	<0.1%	<0.1%	<0.1%
Gearing (net debt/regulatory capital value)	Below 65%	>99.9%	1.9%	0.1%	0.2%

### Results of our risk analysis (costs that are outside the control of management)

We have calculated the likelihood that externally driven costs (inflation or an exogenous shock) could be sufficiently material to warrant an interim determination.

First we applied a pessimistic assumption that the capital programme would be equal to the higher estimate that we have used in setting prices (£2.1 billion at 2003-04 prices). We set out the results of combining uncertainties in CPI, COPI and our assumed risk profile of exogenous<sup>82</sup> shocks (the last combination in Table 8.9) in Figure 8.7. This shows the expected position in 2009-10. The results for 2006-07 to 2008-09 are set out in Appendix 14. Figure 8.7 shows that under this pessimistic scenario, the chance of Scottish Water incurring unforeseen expenses that may lead to interim determination by 2009-10 is around 41%.

<sup>81</sup> 'Our work in regulating the Scottish water industry: Volume 3.

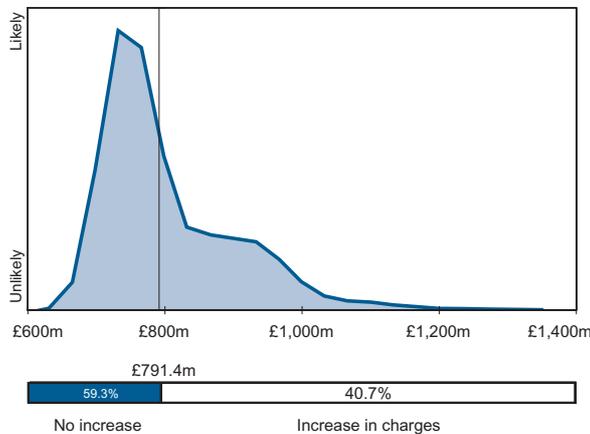
<sup>82</sup> These shocks (scaled to the size of Scottish Water) range from £30 million to £220 million.

It is important to put this risk in proper perspective. It says that if:

- the capital programme outturns at £2.1 billion;
- Scottish Water experiences exogenous shocks similar to those that have happened south of the border (a conservative assumption); and
- there are adverse swings in CPI and COPI relative to RPI.

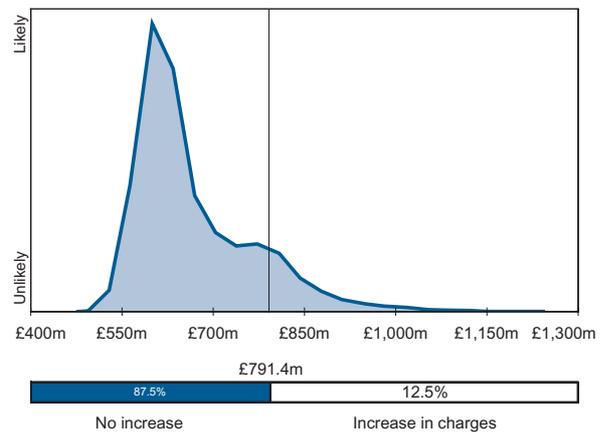
then there is still around a 59% chance that an interim determination would not be required. Again this would seem to emphasise the predictability of the water and sewerage industry.

**Figure 8.7: Impact of factors outside management control on the likelihood of breaching new borrowing allowed in price limits – high capital investment programme scenario**



Second, we adopted a more likely scenario for the size of the capital investment programme, taking the mid-point of the cost range that we identified through our detailed analysis (see Chapter 14 of Volume 5). Figure 8.8 shows that in this scenario, the chances of Scottish Water incurring unexpected expenses that are material enough to trigger an interim determination of charges by 2009-10 is less than 13%. This would require borrowing to exceed around £791 million.

**Figure 8.8: Impact of factors outside management control on the likelihood of breaching new borrowing allowed in charge limits – central capital investment programme scenario**



In both scenarios, our analysis assumes that, except for the effects of inflation and exogenous shock, Scottish Water performs in line with the regulatory contract for operating and capital cost efficiency.

This result should reassure customers that we have set charges at a reasonable level. While we cannot rule out the possibility that an interim determination will be required or that Scottish Water could under-perform the tight budget constraints set out in this draft determination, there is a clear balance of probability that this should not happen – even if Scottish Water faces shocks of comparable size to those observed south of the border.

Indeed our analysis shows that there may have been scope to set slightly lower charges and maintain the levels of capital and operating expenditure set in this draft determination.

## Conclusions

We believe that our risk analysis covers the plausible degree of uncertainty in the principal factors that affect Scottish Water’s costs over the period 2006 to 2010. Our analysis allows, prudently, for the possibility of significant under-performance of the determination of charges by Scottish Water. It analyses a range of outcomes,

including an outcome where Scottish Water's operating cost efficiency deteriorates in the period after 2006. The best performance that we have modelled is consistent with a modestly above average level of efficiency for the companies south of the border.

The results of our analysis indicate that there is a high likelihood that customers can expect Scottish Water to be in a position to forego a portion of its allowed charge caps during the 2006-10 regulatory control period. The chances of the Scottish Executive having to deal with a situation where Scottish Water under-performs the draft determination of charges is less than 9%. Our results also show that key financial indicators used by Ofwat remain within the limits consistent with financial sustainability.

Our analysis also shows that the chances of Scottish Water incurring expenses that could trigger an interim determination is just over 40%, even if our highest estimated value for the capital programme is adopted, there are adverse variances in inflation and the corporation faces exogenous shocks. If the average forecast value for the capital programme is used, there is less than a 15% chance, on the same basis, that Scottish Water will incur expenses (outside management control) that may trigger an interim determination.



# Section 3: Wholesale and retail revenue

## Chapter 9: Calculation of wholesale revenue

### Introduction

In this chapter we explain how we have calculated the wholesale revenue cap that we have set Scottish Water. This wholesale revenue cap includes both the revenue from the retail charge caps set for household customers and the purely wholesale revenue that will be paid to Scottish Water by its retail subsidiary.

We first set the revenue cap for the Scottish water industry as a whole. We explained the approach we used and our conclusions in Chapters 3 and 4. The next step was to use the accounting method to calculate the costs that Scottish Water's retail subsidiary would incur in serving non-household customers. We wanted to use the comparator method to assess the reasonableness of this level of costs, but unfortunately insufficient information was available to allow us to conduct a robust analysis.

Scottish Water's retail subsidiary is likely to incur additional costs as a result of it becoming a separate licensed business. These costs are likely to include carrying out new activities, or existing activities under different operating conditions. For example, Scottish Water's retail subsidiary will have higher IT costs, customer retention costs and an additional cost of capital.

Conversely, the present vertically integrated structure of Scottish Water is likely to mask many activities which neither the retail nor the wholesale business will value when one of the two companies (trading at an arm's length relationship with each other) has to meet the costs. We fully expect separation to generate efficiencies for Scottish Water's retail subsidiary. Potential savings could be made in areas such as reducing customer handling costs, electronic billing and payment, and aggregating bills.

Similarly, we expect that the wholesale business will also be able to make additional savings. These savings are likely to arise because of the improved understanding of costs that will result from the legal separation of the retail activities.

We are confident that the scope for potential savings will more than offset the additional costs from separation in the long run.

### The revenue cap for Scottish Water

Table 9.1 shows Scottish Water's total revenue requirements, as generated by the financial model.

**Table 9.1: Annual Scottish Water revenue requirement (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Revenue requirement	£982.66m	£1,005.54m	£1,009.18m	£1,018.24m

Scottish Water's retail subsidiary will receive all of the revenue allowed by the eight tariff baskets that cover non-household charges – less the small amount that is expected to come from household metered customers. This is set out in Table 9.2.

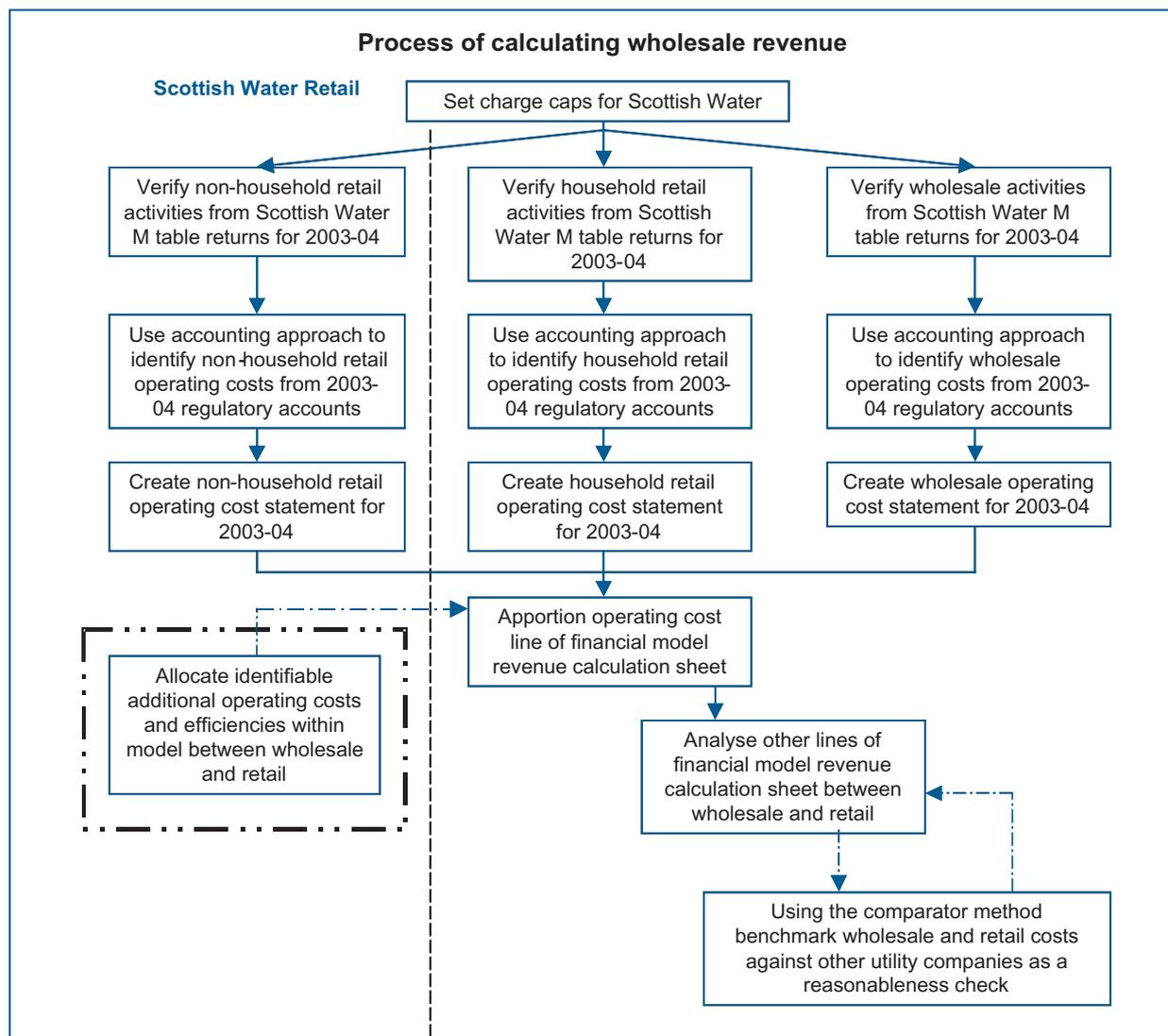
**Table 9.2: Scottish Water's retail subsidiary revenue (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Revenue requirement	£982.66m	£1,005.54m	£1,009.18m	£1,018.24m
Subtract household unmeasured	£641.86m	£661.02m	£667.34m	£673.66m
Subtract household metered customers	£0.18m	£0.18m	£0.18m	£0.18m
Subtract secondary revenue	£13.89m	£14.24m	£14.59m	£14.96m
Scottish Water's retail subsidiary	£326.73m	£330.10m	£327.07m	£329.44m

Scottish Water's retail subsidiary will then pay Scottish Water for the wholesale service provided. This will represent its cost of sales. The gross profit for Scottish Water's retail subsidiary will have to cover operating costs, depreciation and its cost of capital.

Figure 9.1 sets out the process we have used to develop separate wholesale and retail revenue limits.

Figure 9.1: How we calculated wholesale and retail revenue limits



## Verifying the wholesale and retail activities

The first stage of the process was to define the wholesale and retail activities and their costs. We required more information than had previously been reported by Scottish Water in order to complete this analysis.

Scottish Water completes an Annual Return which includes a number of reporting tables that provide information about the different elements of Scottish Water's business. Previously these tables (known as E

tables) only reported activity-based information at a very high level. They did not record the information necessary either to enable us to separate wholesale and retail costs or for Scottish Water to comply with our regulatory accounting rules.

We therefore worked with Scottish Water to develop a new set of tables (the M tables). These tables require Scottish Water to provide much more detailed information about activities, costs and assets. These tables capture the information required under Regulatory Accounting Rule 4<sup>83</sup>. Each activity is then split according to whether it is core or non-core; wholesale or retail; and retail non-

<sup>83</sup> Regulatory accounts are discussed in detail in Volume 4.

household or retail household. In developing the M tables, we were keen to reduce the regulatory reporting burden on Scottish Water by drawing information, as far as possible, from Scottish Water's own Activity-Based Management System (ABM).

We commissioned Ernst & Young LLP<sup>84</sup> to carry out an analysis of individual activities. These activities were categorised according to where they should appear in the M tables, whether they are potentially a shared service, and which accounting rules should apply. Scottish Water used this information to help it to complete the M tables.

## Identifying costs using the regulatory accounts

As described in Volume 4, regulatory accounts provide the level of detail, clarity and transparency necessary to identify individual activity costs.

Costs can either be allocated to activities directly using financial drivers or, for shared services, apportioned based on non-financial drivers. For example, where employees divide their time between retail and wholesale activities they should complete timesheets to indicate where their time has been spent. This allows employment costs to be allocated properly.

In many instances, Scottish Water can either allocate costs directly or use a non-financial driver to apportion them. Some costs are less straightforward to allocate appropriately. For example, central support costs can only be allocated using a degree of judgement. Scottish Water believes that costs allocated on such a basis comprise a very small proportion of total operating expenditure.

Scottish Water submitted regulatory accounts for 2003-04. These accounts are fully reconcilable to the audited historical cost financial statements.

We carried out a detailed analysis of Scottish Water's 2003-04 regulatory accounts and the supporting information. We then worked with Scottish Water to produce a final agreed set of regulatory accounts.

## Understanding the costs of the new retail subsidiary

We have analysed the costs that the new retail subsidiary will incur in the following five areas:

- operating costs;
- metering;
- capital expenditure and depreciation;
- financing costs; and
- tax.

In our analysis, we sought to identify the incidence of activities and their costs to ensure that we struck an appropriate balance between the wholesale core business and the new retail subsidiary. We also identified the extent to which the costs incurred are higher as a result of the establishment of the retail subsidiary.

### Operating costs

We have reviewed the detailed activity analysis within the regulatory accounts. In order to understand the ongoing level of operating costs, we removed all exceptional items. Our analysis of operating costs by functional area is set out in Table 9.3.

**Table 9.3: Analysis of 2003-04 operating costs by function**

Based on 2003-04 M tables	Retail household	Retail non-household	Wholesale	Total core
Water service (excluding exceptional items)	£20.76m	£11.97m	£133.99m	£166.72m
Waste water (excluding exceptional items)	£22.24m	£12.85m	£94.64m	£129.74m
Total (excluding exceptional items)	£43.00m	£24.83m	£228.63m	£296.46m
Percentages	14.51%	8.38%	77.12%	100%

### Metering

We looked in detail at the costs of metering. The capital costs of meters are met by the wholesale business. It is important that a retail supplier requests the appropriate

<sup>84</sup> Ernst & Young LLP, 'Analysis of business activity in Scottish Water', December 2004.

level and type of metering. We can help to make sure that this happens by charging the retailer an annualised amount equal to the cost of installing and maintaining meters. In effect, the retailer is leasing the meter infrastructure from Scottish Water. These costs need to be added to the operating costs of the new retailer. This reduces costs for the wholesaler by an equivalent amount and there is therefore no net impact on customers.

We have estimated the annualised cost of metering in 2006-07 at £0.47 million (2003-04 prices). This rises to £0.51 million (2003-04 prices) by 2009-10. This is based on the expected number of water and waste water meters in 2006-07. This takes full account of the expected cleansing of the customer base that Scottish Water intends to undertake before 2006-07<sup>85</sup>.

We have based our cost per meter on Ofwat's assessment of the annualised cost of a household meter, including installation, of £4 to £6<sup>86</sup>. Non-household customers will on average require larger meters and we have increased Ofwat's £4 to £6 assessment to £7 per meter to reflect this. We then assume that this splits evenly between water and waste water. We have made only a small increase in meter costs since 79% of non-household customers in Scotland have water usage similar to households and more than 95% of non-household metered customers have a meter with a 25mm or lower capacity<sup>87</sup>.

In its second draft business plan, Scottish Water proposes full metering of all business customers by 2010. We have therefore increased the overall annual cost to reflect this.

## Capital expenditure and depreciation

In the second draft business plan for the retail business<sup>88</sup>, Scottish Water estimated that fixed assets with a net book value of £2.00 million would be transferred to the retail business. We have assumed that these assets have a six-year average life and that they are, in line with Scottish Water's other non-infrastructure assets, half way through their useful lives. This implies a depreciation

charge of £0.67 million per year on base assets.

## Financing costs

Scottish Water's retail subsidiary will have an increased cost of capital. This is for two reasons:

- In a competitive market, Scottish Water's retail subsidiary would enjoy an unfair advantage relative to new market entrants if it could access capital at public sector rates.
- Retail activity in a competitive market is an intrinsically more risky activity than for a regulated natural monopoly.

We commissioned Ernst & Young LLP to advise on an appropriate cost of capital for the retail subsidiary of Scottish Water<sup>89</sup>. They advised that a reasonable weighted average cost of capital (WACC) for the new retail business is between 8.2% and 9.4% nominal pre-tax. The cost of equity is assumed to be 12% and the cost of debt is assumed to be 6%. This compares with our hybrid WACC of 4.12% for Scottish Water's core business.

Several factors impact on the cost of capital that we should allow the retail business:

- **Changes in the revenue base:** When the market opens to competition, Scottish Water will have 100% of the available non-household customers. It will, therefore, lose customers over time. As a result it will need to develop a cost structure that is sufficiently flexible to adapt to the level of revenue it retains.
- **A very thin margin:** The supply of utility services is a very low margin business. There is only a small opportunity for adding value in the supply of the basic service.
- **Capital structure:** A low margin business that faces the need to adapt its cost structure to an almost

<sup>85</sup> See Chapter 12 for details.

<sup>86</sup> Ofwat, RD 30/03, 'Measured/unmeasured tariff differential', annex page 10.

<sup>87</sup> Scottish Executive, 'Paying for water services 2006-2010', Analysis of whether there are significant cross-subsidies between the different customer groups served by Scottish Water, Annex 2, Analysis of the WIC22 non-household revenue database, Stone & Webster Consultants Ltd, February 2005.

<sup>88</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan' (April 2005).

<sup>89</sup> Ernst & Young LLP, 'Cost of capital report for the Water Industry Commissioner for Scotland' (May 2005), provided in Appendix 8.

certain future reduction in revenue cannot afford to be highly indebted. It will therefore need to be funded mainly through equity.

The return on equity should take account of:

- the market return on equity; and
- a premium to take account of the new market, the relative size of the retail subsidiary of Scottish Water, its likely loss of customers, and a significant need for working capital.

We have estimated the cash allowed return of the retail subsidiary of Scottish Water as follows:

- In the second draft business plan for the retail business, it was estimated that fixed assets with a net book value of £2.00 million would be transferred to the retail business. We have assumed that these assets are entirely equity-financed.
- We have assumed starting working capital transferred to the retail subsidiary of £88.20 million. This is taken from Scottish Water's retail business plan.
- The bank facility for working capital is assumed to cover 80% of working capital requirements, with the remaining 20% to be financed from equity in the retail subsidiary.
- The bank facility is assumed to be a 365-day 'revolver'<sup>90</sup>, with a charge of LIBOR<sup>91</sup> + 1% (LIBOR rate of 5%).

This analysis gives a cash allowed return on assets transferred to the retail subsidiary as set out in Table 9.4.

**Table 9.4: Cash allowed return for the retail subsidiary (2005-06 prices)**

Item	Amount	Rate of return	Cash allowed return
Depreciated fixed assets	£2.00m	12%	£0.24m
Working capital (debt funded)	£70.56m	6%	£4.23m
Working capital (equity funded)	£17.64m	12%	£2.12
<b>Total</b>	<b>£90.20m</b>		<b>£6.59m</b>

The cash cost of capital of Scottish Water's retail subsidiary is £6.59 million. The cost of capital if these activities had been retained within the core business and funded by debt would have been £4.15 million. The extra cost that has to be met by the retail subsidiary is therefore £2.44 million.

## Tax

The new retail subsidiary of Scottish Water is likely to have to pay corporation tax. We have estimated the tax liability by using the following simplifying assumptions:

- that the capital allowances available to the retail subsidiary for tax purposes are broadly equal to the depreciation charge;
- that the retail subsidiary generates a post-tax, post-dividend profit of £0.00 million; and
- that the tax rate is 30%.

The tax payable would be approximately £1.27 million in 2006-07. By 2009-10, this will have risen to approximately £1.73 million. This is an increase of approximately £0.50 million from what would have been payable in each year if the subsidiary had not been established.

## Other new costs claimed by Scottish Water for its new retail subsidiary

We believe that there will be some additional costs that Scottish Water's retail subsidiary will incur when it begins to operate as a separate entity.

In its second draft business plan for the retail business, Scottish Water set out its views on the extra costs that it is likely to incur. These are shown in Tables 9.5 and 9.6<sup>92,93</sup>.

<sup>90</sup> A 'revolver' is a borrowing arrangement that provides the borrower with a degree of flexibility by allowing the borrower to draw and repay different amounts for different periods throughout the life of the credit facility. There is no requirement for a revolver to be fully drawn.

<sup>91</sup> LIBOR – London Inter Bank Offered Rate: the rate at which banks lend to one another.

<sup>92</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', pages 29-33 (April 2005).

<sup>93</sup> Scottish Water, 'Strategic Review of Charges: Second draft business plan' p. B7-14 (April 2005).

**Table 9.5: Set-up costs claimed by Scottish Water for its new retail subsidiary (2003-04 price base)**

	2005-06	2006-07	2007-08	2008-09	2009-10	Total
Restructuring	£0.00m	£0.00m	£0.00m	£0.91m	£0.91m	£1.82m
Internal preparation costs	£0.73m	£0.18m	£0.00m	£0.00m	£0.00m	£0.91m
IT separation costs	£0.00m	£7.26m	£0.00m	£0.00m	£0.00m	£7.26m
Retail contact management system	£0.00m	£2.18 m	£0.00m	£0.00m	£0.00m	£2.18m
Additional capital expenditure to maintain new systems	£0.00m	£0.00m	£0.18m	£0.18m	£0.18m	£0.54m
Contribution to developing market structures	£0.00m	£0.09m	£0.09m	£0.00m	£0.00m	£0.18m
Total set-up costs within licensed business	£0.73m	£9.71m	£0.27 m	£1.09m	£1.09m	£12.89m

**Table 9.6: New annual costs for the retail subsidiary of Scottish Water (assuming 100% market share) (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10
Interface with market mechanisms	£0.00m	£0.00m	£0.09m	£0.09m
Payment for development and operation of market mechanisms	£0.00m	£0.00m	£4.16m	£4.16m
Enhanced customer service	£0.47m	£0.47m	£0.47m	£0.47m
Additional customer management effort	£0.19m	£0.28m	£0.28m	£0.28m
Additional costs in retail contact management centre due to separation	£0.28m	£0.47m	£0.47m	£0.47m
Regulation and licensing, additional management structures and relations with the core business	£0.47m	£0.47m	£0.57m	£0.57m
Additional marketing effort	£0.09m	£0.19m	£0.19m	£0.19m
Contribution to Commission's costs	£0.19m	£0.19m	£0.19m	£0.19m
Operating costs for newly metered customers	£0.09m	£0.09m	£0.19m	£0.19m
New costs from IT separation	£0.00m	£0.09m	£0.00m	£0.09m
Total recurring costs (per year)	£1.80m	£2.27m	£6.62m	£6.71m

We will consider each of these claims in turn.

## Analysis of set-up costs

### Restructuring costs

Scottish Water's second draft business plan for the licensed business earmarks funds to modify the business in the light of the level and nature of competition<sup>94</sup>.

We recognise that businesses have to adapt to changing conditions in their market place. We also agree that Scottish Water's retail subsidiary will have to contend with a declining number of customers and will need to ensure that its cost base is in line with its share of the retail market.

It is important that decisions about restructuring benefit the business. There is no point in incurring restructuring costs if these do not lower the costs of the business. Otherwise charges would have to increase and a greater number of customers would be likely to switch supplier.

It would not be appropriate for us to allow restructuring costs in price limits for a retail business that will be subject to competition and which benefits from a commercial rate of return.

Scottish Water claimed £0.91 million in both 2008-09 and 2009-10. We are not persuaded by its argument and have disallowed this claim.

<sup>94</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 34, (April 2005).

## Internal preparation costs

Scottish Water believes that the retail arm will incur additional internal preparation costs as a result of having to:

- establish management and reporting structures;
- develop contracts with business customers and Scottish Water;
- establish legal and financial structures; and
- communicate with staff and customers<sup>95</sup>.

We note that Scottish Water expects to have incurred almost all of the costs claimed before the start of the 2006-10 regulatory control period. Scottish Water has claimed £0.73 million for 2005-06 and £0.18 million for 2006-07. This draft determination takes full account of Scottish Water's forecast total operating and capital expenditure costs in 2005-06 (and therefore the £0.73 million). We are prepared to allow the claim for 2006-07.

## IT separation costs

The business plan has allocated these costs to cover the full separation of billing and customer contact management systems, the transfer of the current billing system and the addition of extra functionality<sup>96</sup>.

We have allowed this claim but have reduced it to reflect the scope for efficiency that we found in the capital programme. Scottish Water has claimed £7.25 million for its retail subsidiary. We have allowed this £7.25 million pre-efficiency.

## Retail contact management system

Scottish Water believes that additional capital expenditure is necessary to cover the separation of underlying IT systems to produce a copy of the contact management system and database for business retail activities<sup>97</sup>.

We have not allowed this claim because we believe that the process of separation could be carried out within the IT separation costs.

## Additional capital expenditure to maintain new systems

The draft business plan explains that this expenditure is required to cover the additional cost of maintaining new retail operating systems<sup>98</sup>.

We have allowed this claim but have reduced it to reflect the scope for efficiency that we found in the capital programme. Scottish Water has claimed £0.18 million from 2007-08 onwards for its retail subsidiary. We have therefore allowed £0.18 million pre-efficiency.

## Contribution to developing market structures

Scottish Water has identified additional costs to cover the retail arm's contribution to the development of market mechanisms<sup>99</sup>.

There is still some uncertainty surrounding who will be responsible for paying the capital costs of developing new systems that will be used by more than one retailer. We have assumed that these will fall entirely on Scottish Water's wholesale business. We have therefore made no allowance for such costs in the retail business.

## Contingency

For each one of Scottish Water's assessed additional capital costs we have either allowed or disallowed the item. We also consider that it is appropriate to make an additional £130,000 available to the retail business in each year as a contingency against any costs that are currently unidentified in relation to setting up a retail subsidiary.

## Conclusions on new set-up costs claimed for the retail subsidiary of Scottish Water

We summarise the results of our analysis of Scottish Water's claims for set-up costs in Table 9.7. We have reduced each of the costs we have identified by 17% – the average scope for efficiency in capital expenditure that we have identified<sup>100</sup>.

<sup>95</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan' page 34, (April 2005).

<sup>96</sup> Ibid.

<sup>97</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 35, (April 2005).

<sup>98</sup> Ibid.

<sup>99</sup> Ibid.

<sup>100</sup> The scope for capital expenditure efficiency is described in more detail in Volume 5, Chapter 14.

**Table 9.7: Set-up costs allowed in this draft determination for the new retail subsidiary (2003-04 price base)**

	2006-07	2007-08	2008-09	2009-10	Total
Restructuring	£0.00m	£0.00m	£0.00m	£0.00m	£0.00m
Internal preparation costs	£0.14m	£0.00m	£0.00m	£0.00m	£0.14m
IT separation costs	£6.02m	£0.00m	£0.00m	£0.00m	£6.02m
Retail contact management system	£0.00m	£0.00m	£0.00m	£0.00m	£0.00m
Additional capital expenditure to maintain new systems	£0.00m	£0.15m	£0.15m	£0.15m	£0.45m
Contribution to developing market structures	£0.00m	£0.00m	£0.00m	£0.00m	£0.00m
Contingency	£0.10m	£0.10m	£0.10m	£0.10m	£0.42m
Total set-up costs within licensed business	£6.26m	£0.25m	£0.25m	£0.25m	£7.02m

We assume that all of the asset additions are financed from equity and therefore require a 12% rate of return. We also assume that all new assets are depreciated over five years.

## Analysis of claimed extra annual operating costs

We will now consider each of the annual operating costs in turn.

### Interface with market mechanisms

The retail subsidiary's second draft business plan explains that these costs will be incurred in managing the retail business's interface with the company developing and operating market mechanisms<sup>101</sup>.

We believe that there will be a small cost (£0.20 million) associated with this process and have allowed the claim.

### Payment for development and operation of market mechanisms

These costs have been included to cover the retail subsidiary's contribution to developing and operating the market<sup>102</sup>.

The simple customer registration system that we envisage for the retail market should have operating costs (including depreciation) that are no higher than

£2.50 million per year. We have allowed this amount in response to Scottish Water's claim of £4.16 million for both 2008-09 and 2009-10.

### Enhanced customer service

The second draft business plan states that these costs are necessary in order to enhance customer service so as not to lose market share in a competitive environment<sup>103</sup>.

We are not persuaded that the retail subsidiary should incur extra costs in managing its non-household customers as a result of the introduction of the competition framework. Extra costs would tend to increase customers' bills and no evidence has been presented to show that customers are willing to pay more for an enhanced retail service.

It should be for the market to determine whether an enhanced level of retail service is appropriate.

Scottish Water claimed £0.47 million per year for providing an enhanced customer service. We have not accepted this claim.

### Additional customer management effort

Due to separation, Scottish Water expects to incur higher unit costs in serving customers in the following functions:

<sup>101</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 29, (April 2005).

<sup>102</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 30, (April 2005).

<sup>103</sup> Ibid.

- key customer management/strategic liaison;
- business and community relations;
- marketing;
- customer operations; and
- customer support group<sup>104</sup>.

We are again not persuaded that the retail subsidiary should incur extra costs in managing its non-household customers as a result of the introduction of the competition framework. In our view, it is for management to ensure that its cost base is sufficiently flexible to respond effectively to the loss or regaining of customers in a competitive market. We have therefore disallowed this claim.

### Additional costs in retail contact management centre due to separation

These costs cover services that would previously have been carried out by the household contacts team. These include handling operational business contacts and 'out of hours' emergency situations. In addition, these costs cover the loss of scale and scope economies in the customer management centre<sup>105</sup>.

We accept that there may be some additional costs incurred in the contact management centre as a result of the separation. However, we believe that this is within the control of management to address. We have therefore allowed £0.30 million in the first year and reduced this cost by £0.05 million in each subsequent year of the regulatory control period.

### Regulation and licensing, additional management structures and relations with the core business

The business plan details these costs as covering:

- a separate board and management team;
- monitoring compliance with the separation regime;

- additional reporting requirements to the Commission; and
- contractual relations with the wholesale business<sup>106</sup>.

We recognise that some extra costs may be incurred. We have assumed that a team of three people would be appointed to deal with these issues. Our allowance is £0.2 million for each year of the regulatory control period.

### Additional marketing effort

The second draft business plan recognises the additional marketing pressures that Scottish Water's retail subsidiary will face in a competitive market. There will be new pressures to retain and win back customers<sup>107</sup>.

We recognise that Scottish Water's retail subsidiary will have to increase its marketing activity and have accepted this claim.

### Contribution to Commission's costs

The retail subsidiary has included these costs to cover the new Water Industry Commission's costs in licensing the market<sup>108</sup>.

The Scottish Executive has made it clear that the costs of the Commission in developing the licensing regime will be covered by grant-in-aid until the opening of the market in April 2008. We have disallowed the claim made by Scottish Water for both 2006-07 and 2007-08. We accept the claim in full from 2008-09.

### Operating costs for newly metered customers

It is the Scottish Water retail subsidiary's intention to increase the number of metered customers. This additional operating expenditure recognises the fact that metered customers are on average more expensive to serve than unmetered customers<sup>109</sup>. Scottish Water has said that it does not intend to bill these newly metered customers on a measured basis during this regulatory control period. However, some extra costs may be

<sup>104</sup> Ibid.

<sup>105</sup> Ibid.

<sup>106</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 31, (April 2005).

<sup>107</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 30, (April 2005).

<sup>108</sup> Scottish Water, 'Strategic Review of Charges: Licensed retail business: second draft business plan', page 31, (April 2005).

<sup>109</sup> Ibid.

incurred in communicating this policy to the whole non-household customer base.

This claim is broadly consistent with the Minister's statement on the principles of charging<sup>110</sup>. We have therefore allowed this claim.

### New costs from IT separation

Scottish Water believes that the retail arm will incur one-off operational costs as a result of IT separation<sup>111</sup>.

We do not accept that additional costs should arise due to the separation of the IT system and consider that it is fully within the control of management to ensure that they do not arise.

### Conclusions on new operating costs claimed for the retail subsidiary of Scottish Water

We summarise the results of our analysis of claimed new operating costs in Table 9.8.

**Table 9.8: New annual costs for the retail subsidiary of Scottish Water (assuming 100% market share) (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10
Interface with market mechanisms	£0.00m	£0.00m	£0.10m	£0.10m
Payment for development and operation of market mechanisms	£0.00m	£0.00m	£2.50m	£2.50m
Enhanced customer service	£0.00m	£0.00m	£0.00m	£0.00m
Additional customer management effort	£0.00m	£0.00m	£0.00m	£0.00m
Additional costs in retail contact management centre due to separation	£0.30m	£0.25m	£0.20m	£0.15m
Regulation and licensing, additional management structures and relations with the core business	£0.20m	£0.20m	£0.20m	£0.20m
Additional marketing effort	£0.09m	£0.19m	£0.19m	£0.19m
Contribution to Commission's costs	£0.00m	£0.00m	£0.19m	£0.19m
Operating costs for newly metered customers	£0.10m	£0.10m	£0.20m	£0.20m
New costs from IT separation	£0.00m	£0.00m	£0.00m	£0.00m
<b>Total recurring costs (per year)</b>	<b>£0.69m</b>	<b>£0.74m</b>	<b>£3.58m</b>	<b>£3.53m</b>

We then apply the average efficiency on base operating costs (for water and sewerage) to each of the costs in Table 9.9.

<sup>110</sup> See Appendix 4.

<sup>111</sup> Scottish Water 'Strategic Review of Charges: Licensed retail business: second draft business plan, page 31, (April 2005).

## Additional scope for efficiency in the retail business

We believe that there should be improved scope for efficiency in the retail business as a result of the separation of this activity and the threat of competition. We have firstly assumed that the retail business has the same efficiency targets applied to it as we apply to the whole of Scottish Water combined. Efficiency targets are therefore applied for both capital expenditure costs and operating expenditure costs.

The calculation of the allowed for level of operating cost for the retail subsidiary of Scottish Water is set out in Tables 9.9 and 9.10.

Table 9.10 sets out the total operating costs (pre-efficiency, nominal terms) of Scottish Water's retail subsidiary. It assumes that the retail subsidiary of Scottish Water will retain a 100% market share.

**Table 9.9: Total operating costs of retail activity (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Base operating cost	£26.19m	£26.72m	£27.25m	£27.80m
New operating costs	+£0.73m	+£0.80m	+£3.93m	+£3.95m
Pro-rata share of efficiency targets	-£4.81m	-£5.00m	-£5.77m	-£5.98m
Allowed for level of operating costs, before additional efficiencies	£22.11m	£22.52m	£25.41m	£25.77m

We believe that separating retail and wholesale activities will create additional efficiencies in both the retail and wholesale businesses. We believe that management will be under pressure to keep cost increases in line with inflation. We have taken account of this in our additional efficiency assumptions. These are set out in Table 9.10.

**Table 9.10: Additional scope for efficiency within the retail market (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Additional required efficiency	£0.00m	£0.00m	£2.45m	£2.35m

The retail gross margin required is set out in Table 9.11.

**Table 9.11: Retail gross margin 2006-10**

	2006-07	2007-08	2008-09	2009-10
Operating cost	£22.11m	£22.51m	£22.96m	£23.42m
Meter leasing costs	£0.49m	£0.52m	£0.55m	£0.57m
Depreciation/asset costs	£1.66m	£2.96m	£3.31m	£2.76m
Financing costs <sup>112</sup>	£7.18m	£7.89m	£7.91m	£7.78m
Tax	£1.27m	£1.61m	£1.70m	£1.73m
Total gross margin	£32.72m	£35.49m	£36.43m	£36.27m

## Impact of the set-up of the retail business for the core wholesale activity

We believe that there will be some additional costs, before we take account of any additional scope for improving efficiency, which the core business will incur when it begins to operate without a retail function in respect of non-household customers.

In its second draft business plan, Scottish Water set out its views on the additional costs that it is likely to incur. These are shown in Tables 9.12 and 9.13.

<sup>112</sup> We have assumed that all working capital is funded 80% from equity and 20% from debt. We assume that the working capital requirement for the retail business each year is 27% of total revenue.

**Table 9.12: Claimed capital costs for core business resulting from the new framework for competition (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10	Total
Wholesale billing system	£1.60m	£0.00m	£0.00m	£0.00m	£1.60m
Additional capital expenditure to maintain new systems	£0.00m	£0.30m	£0.30m	£0.30m	£0.90m
Internal preparation costs	£1.10m	£1.10m	£0.00m	£0.00m	£2.20m
Contribution to developing market mechanisms	£0.10m	£0.10m	£0.00m	£0.00m	£0.20m
Contact management centre enhancements	£0.00m	£1.00m	£0.00m	£0.00m	£1.00m
New capital – billing enhancements	£0.00m	£1.00m	£0.00m	£0.00m	£1.00m
Total set-up costs	£2.80m	£3.50m	£0.30m	£0.30m	£6.90m

**Table 9.13: New annual operating costs for the core business resulting from the new framework for competition (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10
Billing and credit management of retailers	£0.20m	£0.50m	£0.70m	£0.70m
Regulation in respect of the licensed market	£0.20m	£0.20m	£0.20m	£0.20m
Additional frictional costs in core contact centre due to business separation	£0.20m	£0.40m	£0.40m	£0.40m
Retailer of last resort	£0.00m	£0.00m	£0.30m	£0.30m
Contractual relations between retailers and wholesalers	£0.10m	£0.10m	£0.10m	£0.10m
Interface with market mechanisms	£0.00m	£0.00m	£0.40m	£0.40m
Total recurring costs (per year) – core business	£0.70m	£1.20m	£2.10m	£2.10m

We will consider each of these claims in turn.

## Analysis of capital costs

Scottish Water's second draft business plan does not identify a breakdown of how each item of capital will be spent. Our assessment of the suitability of this expenditure has therefore been limited.

### Wholesale billing system

We accept that Scottish Water will have to implement a billing system for the licence holders. We have therefore allowed Scottish Water's claim of £1.6 million before applying efficiencies.

### Additional capital expenditure to maintain new systems

We do not accept that the additional capital expenditure necessary to maintain the new billing system should be greater than the equivalent capital maintenance in the

retail subsidiary's billing system. We have therefore allocated £0.15 million from 2007-08.

### Internal preparation costs

We consider that any general internal preparation costs within the wholesale business as a result of separation should be minimal. We have therefore disallowed this expenditure.

### Contribution to developing market mechanisms

There is still uncertainty surrounding who will pay for the initial capital costs of setting up the systems required to facilitate competition. We have provisionally included these within the allowed capital expenditure for Scottish Water wholesale. We have been informed that a simple market mechanism (like the one we aim to set up) could have a price range of £2.00 million to £3.00 million (in 2003-04 prices). We have therefore allowed £1.50 million in 2006-07 and 2007-08 to reflect the full set-up costs of the market mechanism.

## Contact management centre enhancements

We understand that Scottish Water will have lost some scale and scope efficiencies in the contact management centre with the separation of the retail business. We are also aware of the new systems that will have to be implemented to interact with the retailers. We therefore accept this claim.

## New capital – billing enhancements

We believe that the capital allocated to the new wholesale billing system should cover this. Without more detailed information we do not accept this claim.

## Contingency

For each one of Scottish Water's assessed additional capital costs we have either allowed or disallowed the item. We also consider it appropriate to make an additional £100,000 available to the retail business in each year as a contingency against any currently unidentified capital costs that the wholesale business may incur.

## Conclusions on new set-up costs claimed for Scottish Water's wholesale business

We summarise the results of our analysis of Scottish Water's claims for set-up costs in Table 9.14. As with additional capital investment for the retail business, we have reduced projected costs for each year by 17%. This is the current mid-point in our assessment of the scope for capital expenditure efficiency<sup>113</sup>.

**Table 9.14: Allowed for new capital costs for the core business resulting from the new framework for competition (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10	Total
Wholesale billing system	£1.33m	£0.00m	£0.00m	£0.00m	£1.33m
Additional capital expenditure to maintain new systems	£0.00m	£0.15m	£0.15m	£0.15m	£0.45m
Internal preparation costs	£0.00m	£0.00m	£0.00m	£0.00m	£0.00m
Contribution to developing market mechanisms	£1.25m	£1.25m	£0.00m	£0.00m	£2.49m
Contact management centre enhancements	£0.00m	£0.83m	£0.00m	£0.00m	£0.83m
New capital – billing enhancements	£0.00m	£0.00m	£0.00m	£0.00m	£0.00m
Contingency	£0.08m	£0.08m	£0.08m	£0.08m	£0.33m
Total set-up costs	£2.66m	£2.31m	£0.23m	£0.23m	£5.43m

<sup>113</sup> See Chapter 14 of Volume 5.

We assume that each of the assets in Table 9.14 has an average life of five years.

## Analysis of claimed annual operating costs

### Billing and credit management of retailers

Scottish Water set out its strategy for managing the interface between the wholesale business and retailers within its second draft business plan<sup>114</sup>.

It is Scottish Water's intention to create a service management function to deal with retailers. Part of that function will be account management to handle day-to-day billing and contracts. Scottish Water has allocated additional expenditure to meet the cost of this function.

We are not persuaded that Scottish Water will incur significantly greater costs in billing and credit management after the creation of its retail subsidiary. In the first two years of this regulatory control period, Scottish Water's retail subsidiary will be the sole supplier in the market. It is not clear why it should incur significant billing and credit management costs. We have disallowed this claim for the first two years.

In the period after the opening of the market, we accept that Scottish Water may incur some material billing and credit management costs. We have allowed £0.25 million per year to cover these costs.

### Regulation in respect of the licensed market

We do not believe that there will be any significant costs associated with regulation and have disallowed this expenditure.

### Additional frictional costs in core contact centre due to business separation

Scottish Water believes that certain economies of scale that it has gained through the multi-skilling of contact centre staff will be lost through separation<sup>115</sup>.

We have made an allowance to reflect the level of disruption that is outside the control of management. The amount allowed is the same as for the retail contact management centre. It is important that, although the two companies must trade at arm's length, they work jointly to reduce any costs that result from poor customer awareness of the respective roles of the organisations.

### Retailer of last resort

Scottish Water is required by legislation to act as a retailer of last resort. It is Scottish Water's intention to enter into a partnership agreement to be able to offer this service. This expenditure covers the cost of entering into this partnership agreement. We therefore accept this claim.

### Contractual relations between retailers and wholesalers

It is Scottish Water's intention to set up a contact management function to communicate with retailers<sup>116</sup>.

We believe that there will be no costs in relation to this until the market is open to competition. We have therefore only allowed the costs from 2008-09 onwards.

### Interface with market mechanisms

Scottish Water's second draft business plan assigns these costs to cover the wholesale business's costs of its interface with the company developing and operating the market mechanisms<sup>117</sup>.

We agree that there will be costs associated with this interface from 2008-09 and accept this claim.

### Conclusions on annual cost implications for core business

In Table 9.15 we set out our conclusions on the annual cost implications of the separation of activities for the core business of Scottish Water. These costs are before any additional scope for efficiency.

<sup>114</sup> Scottish Water, 'Strategic Review of Charges: second draft business plan', page B6-16, (April 2005).

<sup>115</sup> Scottish Water, 'Strategic Review of Charges: second draft business plan', page B6-17, (April 2005).

<sup>116</sup> Scottish Water, 'Strategic Review of Charges: second draft business plan', page B6-16, (April 2005).

<sup>117</sup> Scottish Water, 'Strategic Review of Charges: second draft business plan', page B6-16, (April 2005).

**Table 9.15: Allowed for new annual operating costs for the core business resulting from the new framework for competition (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10
Billing and credit management of retailers	£0.00m	£0.00m	£0.25m	£0.25m
Regulation in respect of the licensed market	£0.00m	£0.00m	£0.00m	£0.00m
Additional frictional costs in core contact centre due to business separation	£0.30m	£0.25m	£0.20m	£0.15m
Retailer of last resort	£0.00m	£0.00m	£0.30m	£0.30m
Contractual relations between retailers and wholesalers	£0.00m	£0.00m	£0.10m	£0.10m
Interface with market mechanisms	£0.00m	£0.00m	£0.40m	£0.40m
Total recurring costs (per year) – core business	£0.30m	£0.25m	£1.25m	£ 1.20m

We also believe that the wholesale business will be able to generate additional efficiencies as a result of the separation of activities. This may result either through identifying activities that are no longer required or from pressure from retailers to reduce costs. We believe that the cash raised from additional efficiencies to the wholesale business should be greater than the cash raised from additional efficiencies to the retail business. This is most obviously because the wholesale business is much larger, but it is also because it will not face the same commercial pressures to fund service improvements. Efficiency improvements should therefore reduce costs more quickly.

We have set out our view of additional efficiencies in Table 9.16.

**Table 9.16: Additional efficiencies required by the wholesale business (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Additional efficiencies	£0.57m	£2.63m	£4.28m	£5.94m

## Summary of costs

The increase in total costs (core and retail combined) as a result of the separation of the retail activities is set out in Table 9.17.

**Table 9.17: Impact on total costs of separation of retail activities (outturn prices)<sup>118</sup>**

£m	2006-07	2007-08	2008-09	2009-10
Increased operating costs – retail	£0.73m	£0.80m	£3.93m	£3.95m
Increase operating costs – wholesale	£0.26m	£0.22m	£1.12m	£1.09m
Increased cost of capital	£3.15m	£3.72m	£3.83m	£3.83m
Increased tax	£0.50m	£0.50m	£0.50m	£0.50m
Wholesale efficiencies	-£0.57m	-£2.63m	-£4.28m	-£5.94m
Retail efficiencies	£0.00m	£0.00m	-£2.45m	-£2.35m
Total additional operating expenditure	£4.08m	£2.60m	£2.65m	£1.08m

We have added these costs to the financial model in setting the revenue cap.

The revenue cap for the wholesale business is set out in Table 9.18.

**Table 9.18: Revenue cap for the wholesale business (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Total non-household revenue (from Table 19.2)	£326.73m	£330.10m	£327.07m	£329.44m
Retail margin	-£32.72m	-£35.49m	-£36.43m	-£36.27m
Non-household wholesale revenue	£294.01m	£294.62m	£290.64m	£293.17m
Household revenue	£642.04m	£661.20m	£667.51m	£673.83m
Secondary revenue	£13.89m	£14.24m	£14.59m	£14.96m
Total revenue	£949.94m	£970.05m	£972.75m	£981.97m

This is calculated by subtracting the retail gross margin from the revenue caps that were set in Chapter 4.

Table 9.19 summarises the additional capital expenditure that is likely to be incurred as a result of establishing the new competition framework.

**Table 9.19: Additional capital necessary for the wholesale and retail businesses as a result of separation (2003-04 prices)**

	2006-07	2007-08	2008-09	2009-10	Total
Retail capital requirement	£6.26m	£0.25m	£0.25m	£0.25m	£7.02m
Wholesale capital requirement	£2.66m	£2.31m	£0.23m	£0.23m	£5.43m
Total	£8.92m	£2.56m	£0.49m	£0.49m	£12.45m

<sup>118</sup> We believe that there is scope to accelerate the improvement in operating cost efficiency in both the wholesale and retail business after separation. There is evidence from both the electricity and gas industries that disaggregation of the value chain has identified a number of activities (conducted by the vertically integrated monopoly) that were not adding value. Separate studies by Professor Littlechild and Cambridge Econometrics (highlighted in Volume 4) have shown the improvement in operating cost efficiency that can be achieved through separation. Our estimates assume that less improvement is available in the Scottish water industry than the ex-post analysis of the electricity industry might suggest.

This expected capital expenditure is included in Chapter 14 of Volume 5. The amount shown is net of the efficiencies target of 17%.

## Conclusion

We have set the wholesale revenue cap based on the regulatory accounting information that is available to us. The split between wholesale and retail is a notified item and in the event that there is a material change, the new Commission would conduct an interim determination.

The wholesale revenue cap for each year of the regulatory control period is set out in Table 9.20.

**Table 9.20: Scottish Water's wholesale revenue cap (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Revenue cap	£949.94m	£970.05m	£972.75m	£981.97m

The gross margin available to the retail subsidiary of Scottish Water is set out in Table 9.21. We also show the retail revenue cap and the percentage of a non-household customer's annual bill which, on average, covers the costs of providing the retail service.

**Table 9.21: Scottish Water's retail subsidiary gross margin (outturn prices)**

Nominal prices	2006-07	2007-08	2008-09	2009-10
Non-household retail revenue cap	£326.73m	£330.10m	£327.07m	£329.44m
Wholesale revenue cap	£294.01m	£294.61m	£290.64m	£293.17m
Gross margin	£32.72m	£35.49m	£36.43m	£36.27m
Percentage of retail price required to cover retail services	10.01%	10.75%	11.14%	11.01%

In this chapter we have analysed the costs claimed by Scottish Water as a result of the introduction of the Water Services etc. (Scotland) Act 2005. In the main we believe that much of the extra operating costs incurred will be covered by the scope for additional efficiency. We have, however, allowed some £12.45 million in capital expenditure (in 2003-04 prices) to facilitate the separation of the activities and meet any set-up costs.

We believe that Scottish Water's retail subsidiary should have more than sufficient revenue to deliver the level of service that customers expect.



# Section 4: Charges and their impact on customers

## Chapter 10: Introduction of tariff baskets

### Introduction

In Chapters 3 and 4 of this volume, we discussed how we have assessed the level of revenue that Scottish Water should be allowed to raise from customers. This chapter explains our approach in setting charge caps for different groups of customers. Our approach has taken full account of the Ministerial Guidance.

We have established ten tariff baskets to cover the core services provided by Scottish Water<sup>119</sup>. These tariff baskets will ensure that the removal of the £44 million cross subsidy is as transparent as possible. The tariff baskets should also allow customers to understand the implications of this draft determination on their bills. We published detailed information about the tariff baskets in Appendix 13.

### The current structure of retail charges in Scotland

Retail charges to individual customers reflect the service provided. Table 10.1 illustrates the different types of service and customers.

**Table 10.1: Current structure of retail charges**

	Type of Charge		
	Fixed £ per annum	Fixed - pence per £ of RV	Volumetric pence per m <sup>3</sup>
<b>WATER</b>			
Unmetered household	✓		
Metered household	✓		✓
Unmetered non-household	✓	✓	
Metered non-household	✓		✓
<b>SEWERAGE</b>			
Unmetered household			
Waste Water (inc. foul and SWD)	✓		
Metered household			
Sewage	✓		✓
Surface water drainage	✓		
Unmetered non-household			
Sewage	✓	✓	
Surface water drainage		✓	
Metered non-household			
Sewage	✓		✓
Surface water drainage		✓	
Trade effluent	✓		✓ <sup>120</sup>

<sup>119</sup> See Volume 8, Appendix 13.

<sup>120</sup> Trade effluent is charged for using both volume and strength.

<sup>121</sup> Surface water drainage charges cover the cost of draining surface water from a property. Roads drainage charges cover the costs of draining surface water from the public highways.

<sup>122</sup> 1m<sup>3</sup> of water is equal to 1,000 litres.

### Household unmeasured water

Unmeasured household customers pay for water charges based on the Council Tax band of their home. Their bill does not depend on the volume of water used. Discounts are provided to single person households and to low income families.

### Household unmeasured waste water

Charges for unmeasured household waste water customers are also based on the Council Tax band of their property. This charge includes surface water and roads drainage<sup>121</sup>. The same discounts are available as for household unmeasured water.

### Household measured water

Fewer than 1% of household customers have a meter. These customers pay a fixed charge based on the size of their meter connection and a volumetric rate based on how much water they consume. All household metered water customers currently have a standard 20mm connection. This is the smallest connection available.

In April 2004, Scottish Water introduced a low user tariff discount for household and non-household metered customers with a standard 20mm connection who use less than 25m<sup>3</sup> of water a year<sup>122</sup>. These customers now pay a lower standing charge but a higher volumetric rate for the first 25m<sup>3</sup> of water used. Their charges then revert to the standard volumetric rate for consumption greater than 25m<sup>3</sup>.

### Household measured waste water

Household metered waste water customers pay a standing charge based on the size of their water meter connection and a volumetric rate which assumes that 95% of their water consumption is returned to sewer.

These customers pay for surface water and roads drainage based on the Council Tax band of their property.

## Non-household unmeasured water

Unmetered non-household customers are charged according to the rateable value of their property. These customers pay two fixed charges, neither of which reflect their water use: a minimum charge for access to the network and an amount that depends on the rateable value of their property.

## Non-household unmeasured waste water

Unmeasured non-household waste water customers pay three separate fixed charges: a minimum charge for accessing the network and two charges that depend on the rateable value of the property. The first of these covers waste water discharged to sewer and the second covers surface water and roads drainage.

## Non-household measured water

Metered non-household customers pay a standing charge that depends on the size of their meter connection, and a volumetric charge based on how much water they consume.

Non-household measured water customers with a standard 20mm connection are charged in the same way as metered household customers for water.

Larger meter connection sizes range from 25mm to 600mm. Annual water consumption up to 100,000m<sup>3</sup> is charged at the standard 20mm volumetric rate. Customers who use in excess of 100,000m<sup>3</sup> of water during the year receive a discount from the standard volumetric tariff for any consumption above the 100,000m<sup>3</sup> threshold. An increased discount applies above 250,000m<sup>3</sup>. Customers who commit in advance to using a minimum amount of water can obtain a larger discount on consumption above 100,000m<sup>3</sup> and 250,000m<sup>3</sup>.

## Non-household measured waste water

Non-household waste water customers pay a fixed charge based on the size of their water meter connection and a volumetric rate based on an assumption that 95% of their water consumption is returned to sewer. If a

customer can demonstrate that less than 95% of water returns to sewer (for example, a company that uses water in its production processes) then they can apply for an appropriate abatement of charges.

There are no discounts for customers who discharge large volumes of waste water.

The surface water drainage charge for non-household metered customers, whether metered or unmetered, is based on the rateable value of their properties.

## Trade effluent

Charges for trade effluent are based on the Mogden formula<sup>123</sup>. This formula assesses a charge that reflects the costs of treating a particular volume of waste water of a particular strength.

Trade effluent customers pay an annual fixed charge on the basis of their expected effluent discharge and a variable rate based on the actual volume and strength of the effluent discharged.

## A definition of tariff baskets

In the previous section we summarised the services provided by Scottish Water. A tariff basket includes all of the tariffs that impact on customers who receive a particular service. For example, if measured water non-household customers were considered as a single group, all of the tariffs that impact on them would be included. Such a tariff basket would therefore include the standing charges relating to the different sizes of connection available and the volumetric tariffs.

The balance of tariffs within the basket is determined by the number and type of connections, the consumption of water and by increases or decreases in the tariffs included in the basket.

Total revenue is determined by adding together the revenue generated by each tariff basket. The revenue from an individual tariff basket is assessed by calculating the sum product of the customer base and the tariffs that apply.

<sup>123</sup> We discussed Scottish Water's charging for trade effluent and its use of the Mogden formula in Volume 2 of our methodology consultation. This is available on our website at [www.watercommissioner.co.uk](http://www.watercommissioner.co.uk).

We provide below an illustrative example of how the tariff basket works. In the example there are just two tariff baskets.

**Table 10.2: Example of how tariff baskets operate**

	Number of customers Years 1 + 2	Consumption Years 1 + 2	Tariff Year 1	Tariff Year 2	Revenue Year 1	Revenue Year 2
Basket A	5	10	£1.00	£1.50	£50.00	£75.00
Basket B	5	10	£2.00	£2.50	£100.00	£125.00
Total	10	20	-	-	£150.00	£200.00

A 50% increase is allowed in Basket A and a 25% increase in Basket B. Revenue from Basket A increases from £50 to £75 and revenue from Basket B from £100 to £125. Total revenue increases from £150 to £200.

## Calculating the retail charge cap

The retail charge cap is the weighted average increase in tariffs within a basket. It is therefore the maximum amount by which tariffs on average can increase within a tariff basket.

In this draft determination we have set retail charges relative to the retail price index.

The retail charge cap regime applied in Scotland will mirror that which is used in England and Wales. Scottish Water would be permitted to carry over any unused retail change in charges from one year to following years. Unused charge cap is denoted with the letter 'u'<sup>124</sup>. The real retail charge cap is denoted by the letter 'K'.

The maximum retail charge cap is therefore determined as follows:

$$\text{Charge cap} \leq \text{RPI} + K + u$$

## The use of tariff baskets: ensuring compliance with retail charge caps

We will check that the combined impact of changes in the individual tariffs that make up a customer's bill are consistent with the appropriate retail charge cap. We do this by calculating a 'weighted average' change in all of the tariffs within the basket. We compare this with the appropriate retail charge cap.

The weighted average change in retail charges is calculated by multiplying the percentage of tariff basket revenue that each tariff comprises, by the change in the tariff. This gives a weighted percentage increase for each tariff. The total of these weighted percentage increases is then the overall weighted average.

This is illustrated using a sample tariff basket containing just three tariffs.

**Table 10.3: The use of weighted average tariffs**

	% increase (D)	% of total revenue (E)	Weighted % increase (D x E)
Tariff A	5%	50%	2.5% (A)
Tariff B	-5%	20%	-1% (B)
Tariff C	20%	30%	6% (C)
Weighted average (A+B+C)	-	-	7.5%

The weighted average increase provides a good indication of the impact on customers, as it takes account of the relative size of the impact from each tariff change.

The impact of a change in tariffs may be different in subsequent years. It will depend on the importance of that tariff to the revenue contributed by that tariff basket. In Table 10.5, the importance of Tariff A to total revenue has declined, while Tariff B's has increased. The increases in tariffs remain the same.

<sup>124</sup> This option to add any unused portion of a charge cap to the allowed change in a particular year is important. In particular, it removes the risk for Scottish Water in providing the benefit of out-performance in a previous year to customers in the form of a rebate. Should this foregone revenue ever become necessary, Scottish Water could raise more revenue from customers (to the maximum value of 'u') in the year of need.

**Table 10.4: Effect of changing usage of different tariffs**

	% increase	% of total revenue	Weighted % increase
Tariff A	5%	40%	2.0%
Tariff B	-5%	30%	-1.5%
Tariff C	20%	30%	6%
Weighted average	-	-	6.5%

We believe that this approach ensures that all customers within a particular tariff basket are treated equitably. Introducing tariff baskets into the charging regime will also allow us carefully to analyse the impact of tariff changes on total revenue, when customers each buy a different mix of services. It should also better enable us to identify the potential consequences for customers of particular changes in tariffs.

## Timetable for setting charges

We have established a clear timetable for the annual tariff setting process. The timetable for 2006-07 is set out below. We use the following terms:

'Charging Year' – the financial year to which the tariffs will apply (in this example, 2006-07).

'Setting Year' – the financial year in which the tariffs are set (which is one year prior to the charging year, 2005-06 in this example).

'Reference Year' – the financial year from which customer information is taken (which is two years prior to the charging year, 2004-05 in this example).

**Table 10.5: Timetable for setting charges for 2006-07**

End September in Reference Year (2004-05)	<ul style="list-style-type: none"> <li>Customer numbers set</li> <li>Rateable value set</li> </ul>
End March in Reference Year (2004-05)	<ul style="list-style-type: none"> <li>Water and sewage volumes set</li> <li>Trade effluent volumes and loads set</li> <li>Revenue split set</li> </ul>
April of Setting Year (2005-06)	Scottish Water proposes new tariffs (if appropriate)
June of Setting Year (2005-06)	Scottish Water submits customer numbers, rateable value information, consumption and revenue split in the annual 'June return' for the Reference Year
Beginning of September in Setting Year (2005-06)	Scottish Water submits scheme of charges, including tariff basket information
End of November Reference Year (2004-05) to end of November Setting Year (2005-06)	The RPI that is to be applied to charges is measured
December of Setting Year (2005-06)	We write to Scottish Water to set the inflation figure
End December in Setting Year (2005-06)	We either approve the proposed scheme of charges or announce an alternative scheme with an appropriate explanation
1 April in Charging Year (2006-07)	New tariffs take effect

We recognise that tariffs will not be finalised until the end of December in the year before they would come into effect. We raised this as an issue in our methodology consultation document and most respondents nevertheless agreed with our proposed timescale.

This draft determination has set retail charge caps that are consistent with the Ministerial Guidance. These will apply from April 2006. We have also set out in detail the weighting to be applied in each year to each tariff and forecasts of changes in the customer base.

The tariff basket charge caps should allow most customers to have a broad understanding of the likely level of their bill in each year of the regulatory control period. The timeline for the tariff approval process will be the same each year.

We have used the following information to determine the appropriate retail charge caps in this draft determination. Actual information for the Reference Year will be available for the final determination:

- estimated half-year customer numbers from the Reference Year;
- estimated half-year rateable values in the Reference Year;
- estimated water and sewage volumes for the Reference Year;

- estimated trade effluent volumes and loads for the Reference Year;
- estimated revenue split in the Reference Year; and
- estimated change in RPI between 1 November in the Reference Year and the end of October in the Setting Year.

In our methodology consultation<sup>125</sup>, we proposed creating ten tariff baskets. Most stakeholders supported this proposal.

We have therefore used the following ten tariff baskets:

- household unmeasured water;
- household unmeasured waste water;
- non-household unmeasured water;
- non-household unmeasured waste water;
- measured water with 25mm connection or greater;
- measured waste water with 25mm connection or greater;
- surface water drainage (excluding unmeasured household);
- trade effluent;
- standard metered water connection 20mm; and
- standard metered waste water connection 20mm.

## Summary

The introduction of tariff baskets should ensure that customers are better placed to understand how their bills are likely to change during the regulatory control period. It will also increase our understanding of the impact of any tariff changes on specific groups of customers.

In the next chapter we outline the charge caps for each tariff, which we have set in this draft determination.

<sup>125</sup> Available on our website at [www.watercommissioner.co.uk](http://www.watercommissioner.co.uk).



# Section 4: Charges and their impact on customers

## Chapter 11: Limits on retail and wholesale charges

### Introduction

In the previous chapter we explained that we use tariff baskets to set charge limits on the charges that customers will have to pay. This chapter explains the charge limits that will apply to each of the ten tariff baskets that we have established. These charge limits determine the average increase in tariff that will be allowed within a basket. We also set out the assumptions that we have made to calculate these charge limits.

This chapter contains only a summary of the information that we have used in our tariff basket models. The full information is presented in Appendix 13.

In Chapter 14 we explain how these charge limits are likely to affect the bills of representative standard customers.

### Ministerial guidance on charging

In Chapter 4 we outlined the revenue that we propose to allow Scottish Water to collect from customers between April 2006 and March 2010. We explained that this allowed for level of revenue should allow Scottish Water to deliver both the Ministers' 'essential' and 'desirable' objectives for the industry in the 2006-10 regulatory control period. Moreover, we have set retail charges at a level that will ensure that Scottish Water complies with each of the cash-based financial ratios targeted by Ofwat in its recent final determinations<sup>126</sup> for the water and sewerage companies in England and Wales.

The Scottish Ministers also set out the principles to be applied when translating the allowed for level of revenue into retail charges to customers. The principles they required were as follows:

- Retail charges to be set on a harmonised basis across Scotland.
- Retail based on Council Tax bands for household unmeasured water charges should continue. No additional incentive for household customers to become metered should be created.

- A rebalancing of £44 million of revenue from non-household customers to household customers in order to reduce cross-subsidies between the groups.
- A new 25% discount for household customers in receipt of Council Tax benefit.
- The 50% discount for second homes to be removed.
- A long-term aim to phase out charging for non-household customers based on rateable values, by:
  - moving to full metering of non-household customers, as far as is practicable by 2010; and
  - moving to banded charges for roads drainage and highway drainage charges.

We discussed the Ministerial Guidance more fully in Volume 4, Chapter 14. In Table 11.1 we summarise the principles of charging that Ministers required.

**Table 11.1: Ministers' principles of charging**

	Current charging arrangements 2005-06	Updated charging arrangements for 2006-10
<b>Unmeasured household water and waste water</b>	Based on Council Tax band of property. Discounts available for: <ul style="list-style-type: none"> <li>• single occupants (25%); and</li> <li>• second home owners (or properties which are vacant)<sup>127</sup> (50%).</li> </ul> Transitional relief available for customers in receipt of Council Tax benefit.	Continue to be based on Council Tax band: <ul style="list-style-type: none"> <li>• Discounts available to single occupants to remain.</li> <li>• Discounts for second-home owners to be removed.</li> <li>• Customers in receipt of Council Tax benefit to get a new 25% discount.</li> </ul>
<b>Unmeasured non-household water and sewage</b>	Minimum charge for connection to the network. Additional charge based on a proportion of the rateable value of the property.	To be metered where practical and as far as is possible by 2010.
<b>Metered water and sewage</b>	Fixed charge based on the size of the meter. Additional charge based on the amount of water consumed and waste water discharged.	No change to charging arrangements.
<b>Surface water drainage</b>	Measured household customers pay in relation to their Council Tax band. Non-household customers pay a charge that is a proportion of the rateable value of the property.	No changes announced for household customers. Non-household customers to pay in relation to the surface area of their property. Change to be implemented as far as is practical by 2010.

This draft determination complies fully with the Ministers' guidance on both the investment and charging objectives.

<sup>126</sup> This assumes that Scottish Water meets the capital expenditure and allowed level of operating costs outlined in Volumes 5 and 6.

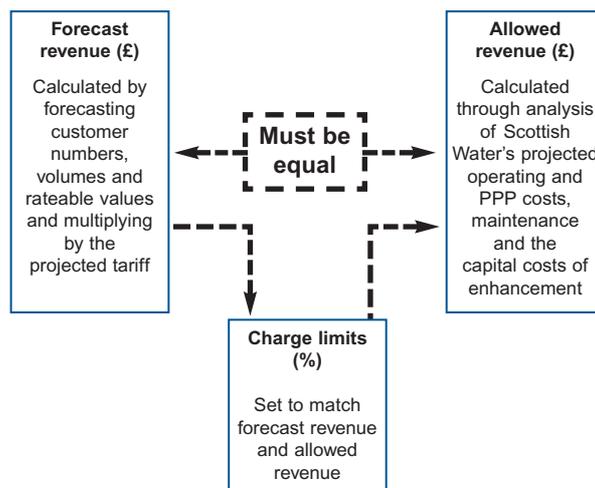
<sup>127</sup> As part of a change in Council Tax collection arrangements, second home owners in some council areas no longer receive the full 50% discount. Councils can, at their discretion, reduce it to as low as 10%.

## Revenue and revenue rebalancing

We calculate retail charge limits by ensuring that our forecast of revenue (based on our retail charge limits and expectations of the customer base) matches the allowed level of revenue in each year<sup>128</sup>. The customer base is referred to as the tariff multiplier. It is a function of the number and type of connection and the volume of water consumed (or waste water discharged).

Figure 11.1 illustrates the charge-setting process. We firstly calculate retail charge limits for both Scottish Water's core functions and its retail subsidiary combined. We then calculate a separate overall limit on the charges of Scottish Water's core (wholesale) function.

**Figure 11.1: How retail charge limits are set**<sup>129</sup>



The retail charge limits for non-household customers will limit the increases in retail charges that the new retail subsidiary of Scottish Water can levy on its customers. We anticipate that the new Commission would make it a licence condition of the new retail subsidiary that it agrees to be bound by these retail charge caps. The non-household charge caps will also apply to Scottish Water in its role as the 'supplier of last resort'.

We have also set limits on the increases in charges that Scottish Water can charge its own and future retailers of water and waste water services to non-household customers. These limits are examined in the section

below, 'Charge limits for Scottish Water's core wholesale business'.

We explained in Chapter 4 that we set an allowed level of revenue for both core and retail functions using our financial model. The revenue that we have allowed Scottish Water in the 2006-10 regulatory control period is summarised in Table 11.2.

**Table 11.2: Total allowed for revenue 2006-10 (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Allowed revenue	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m

This allowed for level of revenue covers both primary and secondary services. Primary services include water and waste water services (eg the collection of sewage). Secondary services include activities such as providing water for building work and field troughs, and septic tank services.

We only set retail charge limits for primary services. We limit the revenue that can be collected from secondary services but do not determine individual charges. We deduct the expected revenue from secondary services each year from the total allowed for revenue to calculate the level of revenue that we need to raise from customers of primary services. This calculation is shown in Table 11.3.

**Table 11.3: Calculation of primary revenue**<sup>130</sup> (outturn prices)

	2006-07	2007-08	2008-09	2009-10
Total allowed revenue	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Secondary revenue	£13.9m	£14.2m	£14.6m	£15.0m
Primary revenue	£968.8m	£991.3m	£994.6m	£1,003.3m

In its second draft business plan, Scottish Water forecast that secondary revenue would increase in line with inflation each year. We have accepted this profile for secondary revenues.

Our retail charge limits will remove the £44 million cross subsidy to household customers from non-household customers by the end of the 2006-10 regulatory control

<sup>128</sup> The allowed level of revenue is discussed in Chapter 4.

<sup>129</sup> The charge limits will influence the individual tariff within each basket.

<sup>130</sup> Totals may not add due to rounding.

period. We have used the household and non-household shares of primary revenue in 2003-04 to calculate the required shares in 2009-10. Table 11.4 sets out the calculation.

**Table 11.4: Calculation of revenue shares from household and non-household customers (2003-04 prices)**

Primary revenue	2003-04 actual revenue (as per Scottish Water's Annual Return 2003-04)	Rebalancing, based on 2003-04 (from Ministerial Guidance)	2003-04 revenue after rebalancing
Household customers	£580.3m	+£44m	£624.3m
Non-household customers	£348.6m	-£44m	£304.6m
<b>Total</b>	<b>£928.9m</b>	<b>£0m</b>	<b>£928.9m</b>
Percentage household	62.5%	-	67.2%
Percentage non-household	37.5%	-	32.8%

We have therefore set charge limits such that forecast revenue in 2010 is:

- £673.8 million from household customers (ie 67.2% of £1,003.3 million); and
- 329.4 million from non-household customers (32.8% of £1,003.3 million).

## The information we use for the baseline and forecast tariff multipliers

### Background

We explained earlier that we set charge limits by matching forecast revenue with the allowed level of revenue for each year. To do this we have to forecast revenue for each year. We begin by forecasting the tariff multipliers for each year.

We start with the best information that is available to us for customer numbers, volumes and rateable values in 2004-05<sup>131</sup> along with forecasts of information for these items for 2005-06. These form our baseline tariff multipliers. We then forecast changes in these tariff multipliers from this base.

Where possible, we have used information from Scottish Water's business plans or its subsequent clarifications. We also draw on comparisons with the companies south of the border.

Using information from Scottish Water's business plans poses a number of problems for us. Much of this information has been inconsistent (even when Scottish Water has resubmitted it to us). There have been large variations in the reported number of customers, let alone the services that these customers use. We are disappointed that Scottish Water has not provided more consistent information or at least a fuller explanation of the reasons for the changes.

We have written to the three former authorities and to Scottish Water on a number of occasions asking for improvements in the information about customers<sup>132</sup>. We had considered that this information was beginning to improve, until we received Scottish Water's revised scheme of charges<sup>133</sup> in December 2004. This informed us that cleansing of the non-household customer database which Scottish Water had undertaken had revealed that there was a large number of errors. The first draft business plan published a month earlier had not made any reference to the scale of the errors. Customer numbers, rateable values and volumes consumed were now said to be considerably lower than previous estimates.

Scottish Water's second draft business plan showed the impact of these changes in the customer base on the underlying revenue. At this point, Scottish Water took the decision to adjust the tariff multipliers for 2004-05 to reflect prior year adjustments. This artificially reduced the reported customer base in 2004-05. We therefore asked Scottish Water to resubmit the supporting customer numbers.

### Customer baseline for the Strategic Review of Charges 2006-10

Scottish Water resubmitted tariff multipliers for 2004-05 and 2005-06. The resubmitted information included the results of a further three months of data cleansing. In

<sup>131</sup> We chose 2004-05 because it is the latest year for which customer information is available and it is also the 'reference year' for our tariff basket formula for 2006-07.

<sup>132</sup> See WIC 1,4, 9,14,22 and 52.

<sup>133</sup> The scheme of charges is the list of all of the tariffs that Scottish Water will charge its customers.

this resubmitted information, Scottish Water did not adjust its forecast customer numbers for the 2006-10 regulatory control period. The resubmitted information for future years was therefore inconsistent with the revised information for 2004-05 and 2005-06.

Table 11.5 shows the range of revenue figures that Scottish Water has submitted for 2004-05.

**Table 11.5: 2004-05 revenue figures submitted by Scottish Water<sup>134</sup>**

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

Revenue forecasts for household customers, which is collected by the local authorities, have not varied significantly between different information submissions.

However, there was a significant change in the information that was provided to us by Scottish Water concerning non-household revenue. This is a £43.3 million reduction between budget revenue and draft actual revenue for the 2004-05 accounts. This represents 11.4% of non-household customer revenue and 21.4% of trade effluent revenue. Scottish Water has said that part of the downward adjustment relates to errors in previous years.

Table 11.6 compares budgeted revenue for 2004-05 with revenue information provided by Scottish Water, which does not include the adjustments for previous years' errors.

**Table 11.6: Revenue information (excluding prior year adjustments) provided by Scottish Water**

	<b>Budget</b> (from period 12 RAB Return)	First draft business plan and first scheme of charges submission <b>Forecast</b>	(Draft) <b>actual</b> detailed reconciliation from resubmitted B8 tables <sup>135</sup> (excludes prior year adjustments)	(Draft) <b>actual</b> 2004-05 (excluding prior year adjustments) (from response to BP16 query <sup>136</sup> )
Household	£606.6m	£607.9m	£607.6m	£606.2m
Non-household	£320.7m	£320.0m	£314.1m	£296.7m
Trade effluent	£29.5m	£27.8m	£23.6m	£27.5m
<b>Total</b>	<b>£956.8m</b>	<b>£955.6m</b>	<b>£937.1m</b>	<b>£930.4m</b>

<sup>134</sup> Totals may not add up due to rounding.

<sup>135</sup> B8 tables are the tariff multiplier tables.

<sup>136</sup> This is the first query on Scottish Water's business plan we raised with regards to revenue adjustments.

As Table 11.6 shows, the underlying reduction in revenue is rather less. However, in Scottish Water's revised submission of the tariff multipliers we received two different versions of the underlying customer base. We have used the resubmitted B8 tables as the starting point for our analysis of the revenue baseline. We used this information submission because it also contains the customer numbers we require.

The change in the customer base is considerable. Table 11.7 compares Scottish Water's forecast customer numbers for 2004-05 and 2005-06 with the figures provided in its June 2004 regulatory return.

**Table 11.7: Reported change in underlying customer base (non-household properties connected to the water service)**

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

In this draft determination, we have used the much lower revised 2005-06 projected revenue in setting retail charge caps for the regulatory control period.

We are concerned that there may be a large number of customers who are not being billed or are not being billed for the correct amount. We suggest that identifying these customers should be a priority for Scottish Water. It is unlikely that all billing errors will result in too much revenue being accrued by Scottish Water.

## Customer numbers

Another of our concerns relates to the revised number of non-household customers, which appears to be rather low. We have compared Scottish Water's reported numbers of non-household customers to the:

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

Table 11.8 compares Scottish Water's reported number of non-household customers in its 2003-04 Annual Return (prior to the downwards adjustments) with the latest available information on the number of businesses in Scotland.

**Table 11.8: Comparisons of business numbers in Scotland<sup>137</sup>**

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

While we recognise that many businesses may not have a water connection, we believe that the sort of downwards adjustments that we have seen in recent months would seem to be inconsistent with the actual number of businesses that exist.

We compared the numbers of businesses and number of households served by each of the water companies in England and Wales. Our analysis is set out in Table 11.9.

<sup>137</sup> Source of number of businesses in Scotland is Scottish Executive, Scottish Economic Statistics 2004, 2004, Table B1.2.

**Table 11.9: Number of businesses and households for water companies in Great Britain**

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

We would expect there to be a higher proportion of businesses to properties in more rural areas than in more urban areas.

Scottish Water seems to have relatively few non-household properties connected per household. Most companies with a similar proportion of non-household customers are located in the South East of England. If Scottish Water had the British average proportion of businesses to households, then it would have around 160,000 non-household customers. This would seem to be not inconsistent with information about the number of businesses in Scotland.

Scottish Water's restated customer base gives it one of the lowest proportions of businesses to households of any company in Britain. Again, we consider that a priority

for Scottish Water would be to examine its records carefully to make sure that it is billing all customers who are receiving a service.

We believe that there needs to be a detailed review of the customer base, including comparisons with network maps and analysis of void properties.

Notwithstanding the concerns we have about the quality of the information provided by Scottish Water, we have accepted its projected lower customer numbers and revenue for 2005-06.

We now explain baseline and forecast tariff multipliers for household and non-household customers separately.

## Baseline and tariff multipliers for household water and waste water customers

### Baseline customer numbers – unmeasured

Unmeasured household customers pay for their water and sewerage services according to the Council Tax band of the property in which they live. For Council Tax purposes, properties are banded from A to H. In setting water charges we look at the number of Band D equivalent properties.

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

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

The percentage of a Band D bill paid by each band is shown in Table 11.10.

**Table 11.10: Proportion of Band D bill for each customer**

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

The ‘Band D equivalent’ is calculated by multiplying the number of customers in each category by the relevant number of ninths of a Band D bill and dividing by 9.

We asked Scottish Water to provide customer information at an individual band level. The detailed assumptions that we used are shown in Appendix 13.

Unmeasured household water and waste water customers for 2004-05 and 2005-06 are shown in Table 11.11. We have taken this information from Scottish Water’s second draft business plan. This forms the baseline for projections of future customer numbers.

**Table 11.11: Baseline unmeasured household customer base**

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

**Baseline customer numbers – measured**

Measured household customers’ bills comprise three elements:

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

- A charge for surface water drainage based on the Council Tax band of the property.

We set out the household measured revenue base for 2004-05 in Table 11.12. Again, we have taken this information from Scottish Water’s second draft business plan.

**Table 11.12: Baseline measured household customer base**

	2004-05	2005-06
<b>Water</b>		
Number of connected properties	438	438
Total volume (m³)	70,080	70,080
<b>Sewage</b>		
Number of connected properties	158	158
Total volume (m³)	16,591	16,591
<b>Surface water drainage</b>		
Property drainage – Band D equivalent connected properties	285	285
Roads drainage – Band D equivalent connected properties	285	285

**Future trends in household customer numbers**

We have assumed that no unmeasured household customers will switch to a measured charging basis during the 2006-10 regulatory control period. It is possible that some high banded households may have a small incentive to switch to measured tariffs, but this draft determination does not create any new incentives to switch. This is broadly in line with the Ministerial Guidance. It was not possible to treat all non-household customers in the same way and not increase the absolute number of households that may have a small incentive to switch. Since all non-household bills would fall relative to household bills, the tariffs for a household metered customer would also fall relative to an unmeasured household bill. We believe that there is only likely to be a smaller number of additional households that will have an incentive to switch to a metered supply.

**Unmeasured household customer forecasts**

In its second draft business plan, Scottish Water states that it believes that the number of households will increase

by 0.6% per year. Our analysis has shown that new households tend, on average, to have a higher Council Tax band than existing households. This causes the number of Band D equivalent properties to increase more quickly than the number of connected properties. Scottish Water has recognised this and has estimated the annual increase in Band D equivalent properties at 0.67%.

Only a small percentage of households on the Council Tax register are not connected for water and sewerage services. We believe that this will not affect our analysis.

**Table 11.13: Historical growth rates in number of properties**

Percentage growth	Customer numbers (chargeable)	Band D equivalent properties
1996 to 1997	0.62%	0.77%
1997 to 1998	0.70%	0.66%
1998 to 1999	0.84%	0.98%
1999 to 2000	0.63%	0.76%
2000 to 2001	0.77%	0.89%
2001 to 2002	0.59%	0.89%
2002 to 2003	0.79%	0.91%
2003 to 2004	0.81%	1.06%
Average	0.72%	0.86%

Table 11.13 shows that the growth rate for chargeable properties and Band D equivalent properties has consistently been higher than that which is forecast by Scottish Water.

The Ministerial Guidance requires investment to remove development constraints for 15,000 new homes a year in the 2006-10 regulatory control period. If we assume that only these 15,000 homes are built each year, this results in an annual growth rate in the number of connected properties of 0.68%. This is less than the average growth in connected properties over the past eight years. It would, however, imply an annual growth rate of 0.89% in Band D equivalent properties.

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

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

Removing the discounts for second home owners increases the revenue to Scottish Water. The introduction of a 25% discount for customers who receive Council Tax benefit will decrease its revenue.

Table 11.14 shows the net change in the number of Band D equivalent customers as a consequence of the Ministerial Guidance. We have assumed that 75% of customers receiving a 50% discount are second home owners and that customers receiving Council Tax benefit continue to represent broadly the same proportion of the total number of households in each band.

**Table 11.14: Projected movements in Band D equivalent customers 2006-07 as a result of changes in discounts**

	Water customers	Waste water customers
Band D equivalent customers before changes in discount structure	1,868,659	1,786,541
Reduction in Band D equivalent customers due to introduction of 25% discount for customers in receipt of Council Tax benefit	52,689	49,572
Increase in Band D equivalent customers due to removal of 50% discount for customers with second homes	37,966	33,218
Total number of Band D equivalent customers following changes in discount structure	1,853,938	1,770,189
Net difference	-14,721	-16,357

This change however also impacts on the expected rate of change in the number of Band D equivalent properties.

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

the faster growing categories of property that pay more than a Band D property now have a greater overall weight.

Our analysis suggests a predicted trend growth for 2006-07 to 2007-08 of between 0.92% and 0.98%. Our projections of Band D equivalent customers for 2004-05 to 2009-10 are shown in Table 11.15.

**Table 11.15: Projections of water and waste water unmeasured household Band D equivalent customers**

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

## Measured household customer forecasts

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

Our projections for measured household customers are summarised in Table 11.16.

**Table 11.16: Projections of water and waste water measured household customers**

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

We use the customer numbers in Tables 11.15 and 11.16 to project revenue and to set retail charges for household customers. The detailed information that underlies the summaries presented in these tables can be found in Appendix 13.

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

### Baseline tariff multipliers – unmeasured non-household

Retail charges for unmeasured non-household customers are currently based on the rateable values of their properties. Bills for these customers comprise three elements:

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

Baseline customer numbers and rateable values for water and waste water are shown in Table 11.17. We have taken these from the Scottish Water business plan.

**Table 11.17: Baseline unmeasured non-household customer base 2004-05 and 2005-06**

	2004-05	2005-06
<b>Water</b>		
Number of connections	54,272	48,210
Rateable value (£m) <sup>138</sup>	472.7	425.3
<b>Waste water</b>		
Number of connections	51,384	45,547
Rateable value (£m)	465.1	418.4

Further detailed information about non-household unmeasured customers can be found in Appendix 13.

### Baseline customer numbers – measured non-household

Bills for measured non-household customers comprise three elements:

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

Baseline information for the number of meters, meter sizes, consumption and rateable values for water and waste water are shown in Table 11.18.

**Table 11.18: Baseline measured non-household customer base 2004-05 and 2005-06**

	2004-05	2005-06
<b>Water</b>		
<i>Number of meters</i>		
20mm or less	68,623	69,324
Greater than 20mm	12,802	8,080
Total number of meters	81,425	77,404
<i>Volumes (m<sup>3</sup>)</i>		
20mm meter, volumes less than or equal to 25m <sup>3</sup>	1,445,000	1,485,000
20mm meter, volumes greater than 25m <sup>3</sup>	30,315,000	30,365,000
Greater than 20mm meter, volumes less than or equal to 100,000m <sup>3</sup>	56,121,078	55,536,656
Greater than 20mm meter, volumes of greater than 100,000m <sup>3</sup> but less than or equal to 250,000m <sup>3</sup>	11,615,413	10,697,991
Greater than 20mm meter, volumes of greater than 250,000m <sup>3</sup>	52,360,370	50,288,304
Total volume	151,856,861	148,372,952
<b>Sewage</b>		
<i>Number of meters</i>		
20mm or less	49,137	48,112
Greater than 20mm	7,222	3,257
Total number of meters	56,359	51,369
<i>Volumes</i>		
20mm meter volumes less than or equal to 23.75m <sup>3</sup>	977,446	1,024,946
20mm meter volumes greater than 23.75m <sup>3</sup>	16,573,000	16,611,000
Volume discharged for all other meter sizes	26,140,126	24,847,850
Total volume discharged	43,690,572	42,510,596

We have included the complete breakdown of metered non-household customer information in Appendix 13.

<sup>138</sup> Includes a small number of customers who continue to receive charitable relief. These discounts were formerly provided by local authorities and were inherited by the three former water authorities when they were formed in 1996-97. Following public consultation, Ministers announced the phased removal of these discounts from 2000. All charitable relief should have ended by April 2006.

## Future trends

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

When Scottish Water resubmitted its customer number tables to us, it had updated the information for 2004-05 and 2005-06. However, it had not updated the information for future trends. As a result, the series of future trends that we have from Scottish Water are not consistent with the information on customer numbers provided for 2004-05 and 2005-06.

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

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

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

We examine each of these in turn.

## Underlying trend changes – customer numbers

We have used historical trends in customer numbers to understand likely changes in the customer base. These trends are set out in Table 11.19.

**Table 11.19: Numbers of businesses (excluding central and local government) by size band 1999 to 2003<sup>139</sup>**

	1999	2000	2001	2002	2003	Percentage change 1999-2003
0-49 employees	226,510	230,865	237,555	246,300	256,855	13.4%
50-249 employees	3,270	3,350	3,500	3,490	3,415	4.4%
250+ employees	2,220	2,245	2,345	2,295	2,270	2.25%

It is clear that there has been a general rise in the number of businesses in Scotland over recent years. A general rise in the number of businesses could be expected to increase the number of businesses that Scottish Water serves.

The Ministerial Guidance requires that 2,025 hectares of commercial land should be made available for development. Scottish Water has assumed 28 household population equivalents per hectare<sup>140</sup>. This suggests an annual volume of 1,420m<sup>3</sup> per hectare (based on Scottish Water's information on consumption). We have assumed that new businesses have the same consumption characteristics as current unmeasured customers (331m<sup>3</sup> per year). This suggests approximately 4.3 businesses per hectare. This is around 8,707 new businesses over the regulatory control period – or around 2,177 new businesses per year.

Our projections of total non-household customers for water and waste water are shown in Table 11.20.

**Table 11.20: Projected total non-household customers**

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

As can be seen from Table 11.20, despite our assumptions about a growing customer base, Scottish Water still has fewer customers in 2009-10 than it claimed to have in 2004-05.

## Underlying trend changes – volumes

Scottish Water has made different assumptions about the water use of different categories of non-household customers. We have reviewed the evidence that Scottish Water submitted. We agree, in principle, that large users will exhibit greater volume declines than customers who use less water. We have assumed that there will be no net increase or decrease in the consumption of customers with the lowest water use (those with a 20mm connection).

<sup>139</sup> Source: Scottish Executive, Scottish Economic Statistics 2004, 2004, Table B1.2.

<sup>140</sup> This is taken from the Reporter's comments on Table B5.2W of Scottish Water's second draft business plan.

In its resubmitted business plan tables, volume changes projected by Scottish Water for customers with a bigger meter than 20mm are as follows:

- Consumption of less than or equal to 100,000m<sup>3</sup> per year: increase of 1.6% from 2005-06 to 2009-10. This is around 0.4% per year.
- Consumption of greater than 100,000m<sup>3</sup> but less than or equal to 250,000m<sup>3</sup> per year: a decline of 3.4% from 2005-06 to 2009-10. This is around 0.9% per year.
- Consumption of greater than 250,000m<sup>3</sup> per year: a 19.2% reduction between 2005-06 and 2009-10. This is around a 5.2% reduction per year.

Scottish Water's projections result in a decline in the volume that is consumed by customers with a meter bigger than 20mm of around 9,150 MI<sup>141</sup>. This is almost enough water for 82,000 households – or all of the households in the Renfrew Council area for a whole year.

As explained previously, Scottish Water did not update its projections for 2006-10 when it resubmitted its tariff multiplier tables. We have reviewed the evidence provided by Scottish Water and compared this with historical trends in England and Wales. From this, we have developed the following assumptions:

- Consumption of less than or equal to 100,000m<sup>3</sup> per year: no change over the period.
- Consumption of greater than 100,000m<sup>3</sup> but less than or equal to 250,000m<sup>3</sup> per year: a decline of 1.4% per year.
- Consumption of greater than 250,000m<sup>3</sup> per year: a decline of 1.8% per year.

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

We have assumed that each new non-household connection has the smallest possible (20mm) connection. We have also assumed that they consume the average volume of a current unmeasured customer.

We have made consistent assumptions for waste water.

<sup>141</sup> MI = Mega litres = 1,000,000 litres.

<sup>142</sup> Scottish Water's rightsizing programme was targeted specifically at customers with a 40mm meter or greater. However, there has been considerable movement in the 25mm meter category, suggesting that many of these customers have also had their meter size changed.

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

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

The impact of this assumption on the non-household customer base is set out in Table 11.21

**Table 11.21: Projected measured and unmeasured non-household customers**

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

We have assumed that the meter profile of customers with meters larger than 25mm does not change during the 2006-10 regulatory control period<sup>142</sup>.

The effect of all of these changes on the customer base for 2004-05 to 2009-10 is summarised in Tables 11.22 and 11.23.

**Table 11.22: Projection of unmeasured tariff multipliers**

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

**Table 11.23: Projection of measured tariff multipliers**

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

## Surface drainage charges

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

We have assumed that each new property added in the 2006-10 regulatory control period has a surface drainage connection. We have also assumed that the rateable value base for each new connection is equal to the average rateable value in Scotland of £20,000 per year.

Projected surface drainage rateable values for property drainage and roads drainage are shown in Table 11.24.

**Table 11.24: Rateable values for surface drainage 2004-05 to 2009-10**

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

## Trade effluent charges

Charges for trade effluent are based on the Mogden formula. This relates to the charge that the customer pays to the strength and volume of the customer's effluent discharge. Scottish Water has made a large downwards adjustment in its trade effluent customer

base for 2004-05 and 2005-06. We have accepted its adjustment and its assumptions on the change in the trade effluent customer base. Full details of the trade effluent customer tariff multipliers can be found in Appendix 13.

Table 11.25 presents a summary of the projected customer numbers and volumes.

**Table 11.25: Projected customer numbers and volumes for trade effluent**

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

## Retail charge limits

The setting of individual charge limits is an iterative process. We have set charges in line with the Ministerial Guidance. Charges are set so that:

- total forecast revenue equals calculated allowed revenue;
- customers do not see rises of above inflation in any one year; and
- the £44 million of cross-subsidy has been unwound by the end of the regulatory control period.

The first stage of the process is to forecast annual revenue without any changes in charges. This is the revenue that arises from any underlying changes in the customer base. If forecast revenue were greater than the allowed level of revenue, there would have to be a fall in charges. The converse is also true.

We have forecast revenue for each year using 2005-06 tariffs. This is summarised in Table 11.26. We have divided our forecast into household and non-household customers to show the percentage from each customer group.

**Table 11.26: Revenue projections with 2005-06 tariffs and comparison with allowed revenue**

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage in 2009-10
Forecast household	£628.8m	£629.5m	£635.5m	£641.6m	£647.7m	65.8%
Forecast non-household	£322.7m	£326.7m	£330.1m	£333.9m	£336.3m	34.2%
Forecast primary	£951.5m	£956.2m	£965.6m	£975.5m	£984.0m	100%
Forecast secondary <sup>143</sup>	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m	
Forecast core revenue	£965.1m	£970.1m	£979.9m	£990.1m	£999.0m	
Allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	

If forecast charges do not change, forecast revenue will be below the allowed for level of revenue in each year.

<sup>143</sup> Secondary revenue is assumed to increase at 2.5% (RPI) each year.

Table 11.26 also shows that the percentage of revenue that comes from household customers by 2009-10 is 65.8%. This would not unwind the £44 million cross subsidy. Retail charge increases for household customers will have to be higher than those for non-household customers.

The results of the tariff basket models are set out in Table 11.27. This table summarises the required nominal charge increase in each tariff basket to comply with the Ministerial guidance on the principles of charging.

**Table 11.27: Required nominal charge increase for each tariff basket**

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	2%	2%	0%	0%
Household unmeasured wastewater	2%	2%	0%	0%
Non-household unmeasured water	0%	0%	-2.1%	0%
Non-household unmeasured wastewater	0%	0%	-2.1%	0%
Measured water (with 25mm connection or greater)	0%	0%	-2.1%	0%
Measured wastewater (with 25mm connection or greater)	0%	0%	-2.1%	0%
Surface water drainage (excluding unmeasured domestic)	0%	0%	-2.1%	0%
Trade effluent	0%	0%	-2.1%	0%
Standard metered water connection (20mm)	0%	0%	-2.1%	0%
Standard metered wastewater connection (20mm)	0%	0%	-2.1%	0%
Overall weighted average price increase	1.3%	1.3%	-0.7%	0.0%

Table 11.27 shows that no household (except a second home owner) will face an increase in their water bill in real terms in any year of the regulatory control period. Similarly, all non-household customers who pay with reference to the charges scheme will not see a reduction in their bill in nominal terms over the regulatory control period.

The charge limits in Table 11.27 result in the revenue breakdown as shown in Table 11.28.

**Table 11.28: Revenue breakdown implied by our retail charge limits**

	2005-06	2006-07	2007-08	2008-09	2009-10	Percentage in 2009-10
Forecast household	£628.8m	£642.0m	£661.2m	£667.5m	£673.8m	67.2%
Forecast Non-household	£322.7m	£326.7m	£330.1m	£327.1m	£329.4m	32.8%
Forecast primary	£951.5m	£968.8m	£991.3m	£994.6m	£1,003.3m	100%
Forecast secondary	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m	
Forecast core revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	
Allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m	

We explained in the previous chapter that we set real charge increases. We have decided to use the retail price index (RPI) as the inflation index for retail charge setting<sup>144</sup>. This is the same index that Ofwat uses to set charge limits for the water and sewerage companies in England and Wales. Scottish Water therefore has the same protection against financing inflation risk as the water and sewerage companies in England and Wales.

Scottish Water is allowed to increase charges each year by the increase in RPI, plus a 'K' factor set by us. The K factor for each tariff basket against which we will monitor Scottish Water is shown in Table 11.29.

**Table 11.29: The K factor for each tariff basket**

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-2.5%	-2.5%
Household unmeasured wastewater	-0.5%	-0.5%	-2.5%	-2.5%
Non-household unmeasured water	-2.5%	-2.5%	-4.6%	-2.5%
Non-household unmeasured wastewater	-2.5%	-2.5%	-4.6%	-2.5%
Measured water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Measured wastewater (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Surface water drainage (excluding unmeasured domestic)	-2.5%	-2.5%	-4.6%	-2.5%
Trade effluent	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered wastewater connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Overall weighted average price increase	-1.2%	-1.2%	-3.2%	-2.5%

<sup>144</sup> We use different charge indexes for different parts of the process. For example, we assess expected investment costs using the Construction Outputs Price Index (COPPI) and operating cost increases using the Consumer Price Index (CPI). However, charge limits are set with reference to the retail price index (RPI).

## Charge limits for Scottish Water's core wholesale business

In the previous section we described the retail charge limits that Scottish Water and its retail subsidiary are allowed to charge for household and non-household customers respectively. These limits are not affected by the introduction of the new competition framework.

We have also set limits on the amount that Scottish Water is allowed to charge retailers of non-household customers (including its own retail subsidiary). We refer to these as wholesale charges. We do not wish to pre-empt the market effects of competition on tariffs.

In Chapter 9 we explained how we have separately identified, for each year:

- wholesale revenue; and
- retail revenue for:
  - household customers; and
  - non-household customers.

To calculate the allowed for wholesale non-household revenue we start with total allowed for revenue then subtract:

- total revenue collected from household customers;
- total secondary revenue ; and
- the non-household retail margin.

This calculation is shown in Table 11.30.

**Table 11.30: Allowed for revenue for wholesale businesses (outturn prices)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Total allowed revenue	£965.1m	£982.7m	£1,005.5m	£1,009.2m	£1,018.2m
Less: household revenue	£628.8m	£642.0m	£661.2m	£667.5m	£673.8m
Less: Secondary revenue	£13.6m	£13.9m	£14.2m	£14.6m	£15.0m
Less: non-household retail margin	£32.3m	£32.7m	£35.5m	£36.4m	£36.3m
Non-household wholesale revenue	£290.3m	£294.0m	£294.6m	£290.6m	£293.2m

There is no precedent within the UK water and sewerage industry for the setting of wholesale charges. We therefore believe that it is important that Scottish Water has the opportunity to decide how it wants to set its wholesale tariffs<sup>145</sup>. We will therefore ask Scottish Water 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 implied non-household wholesale revenue cap for 2005-06.

We consider that as the market develops, Scottish Water wholesale may wish to rebalance tariffs better to reflect the underlying costs. We have therefore set one K factor for the entire non-household wholesale business.

We have assumed that the annual percentage change in the wholesale customer base is the same as that for the combination of the wholesale and retail business (see Table 11.26). Table 11.31 forecasts total revenue for the wholesale business on the assumption that tariffs do not change.

**Table 11.31: Forecast non-household wholesale revenue resulting from changes in the customer base (outturn prices)**

	2005-06	2006-07	2007-08	2008-09	2009-10
Forecast non-household wholesale revenue	£322.7m	£326.7m	£330.1m	£333.9m	£336.3m
Percentage change		1.3%	1.0%	1.2%	0.7%

The calculation of non-household wholesale charge limits is shown in Table 11.32.

<sup>145</sup> Scottish Water did not provide any detailed information on its plan for wholesale tariffs in its second draft business plan.

**Table 11.32: Non-household wholesale charge limits (outturn prices)**

	2006-07	2007-08	2008-09	2009-10
Previous year revenue	£290.3m	£294.0m	£294.6m	£290.6m
Percentage change due to customer base changes	1.3%	1.0%	1.2%	0.7%
Revenue base for year	£294.0m	£297.0m	£298.0m	£292.8m
Allowed revenue	£294.0m	£294.6m	£290.6m	£293.2m
(Allowed revenue / Revenue base) minus 1	0.0%	-0.8%	-2.5%	0.1%
The K factor (subtract RPI)	-2.5%	-3.3%	-5.0%	-2.4%

We will monitor Scottish Water's compliance with the K factor using the tariff basket methodology that we outlined in Chapter 10.

## Conclusions

Our charge limits meet all of the objectives outlined in the Ministerial Guidance, with the exception of the incentive to switch to a meter for higher banded households.

In particular, our charge limits are consistent with:

- harmonisation of charges across Scotland;
- the continuing link between household charges and Council Tax bands;
- customers that receive Council Tax relief having a new 25% discount on their charges; and
- rebalancing between non-household and household customer revenue of £44 million, achieved without any real increases and phased over the four year regulatory control period.

In addition, we have separately identified wholesale and retail charge limits. These limits will allow both businesses sufficient revenue to fund their efficient operation.

In Chapter 12 we explain how these charge limits will affect the standard customers that we use for illustrative purposes.



# Section 4: Charges and their impact on customers

## Chapter 12: The impact of charge caps on customers' bills

### Introduction

In the previous chapter we outlined the charge limits that will be applied to various customer groups. In this chapter we explain how these charge limits will affect the bills customers pay.

Scottish Water has around 2.3 million household customers and just over 120,000 non-household customers. Almost all household customers<sup>146</sup> pay on an unmeasured basis with reference to the Council Tax Band of their property.

Non-household (and metered household) customers require a different mix of services from Scottish Water. Tariff changes will impact on their bills in different ways. While we cannot project the impact of tariff changes on the bills of all such customers, we are keen to ensure that both the process and the outcome of this draft determination are as transparent as possible. We therefore use a series of standard customers to illustrate the effects of charge limits on customers' bills.

### Standard customers

We first used standard customers in the Strategic Review of Charges 2002-06. At this time, information about customers was not as robust as we would have liked. Following the Review, it became clear that some of the standard customers were not particularly representative of Scottish Water's customer base. We explained this more fully in Volume 3 of our methodology consultation, where we proposed to update our standard customers in a number of ways:

- continuing with the standard customers we used previously, but updating the name of the customer to make it as representative as possible;
- adding smaller measured customers and a measured household;
- adding some unmeasured customers, which is a category that had been omitted from our previous list; and

- adding some trade effluent customers – we were not responsible for approving charges for trade effluent customers at the last Strategic Review, but the Water Services etc. (Scotland) Act 2005 makes this the responsibility of the new Water Industry Commission.

We further updated the standard customers in light of responses to our methodology consultation. We now believe that we have a representative set of standard customers. If customers compare their usage characteristics with that of the standard customers, it should prove easier to understand the likely impact of changes in tariffs on their bills.

### The charge limits

In the previous chapter we explained that we set two sets of charge limits:

- an overall level of wholesale charges; and
- a retail charge cap, set in relation to a number of tariff baskets

Each year Scottish Water or its Retail Subsidiary<sup>147</sup> will be allowed to increase its retail charges in line with inflation (measured using the retail price index), minus the 'K' factor that we have set in this draft determination. The overall charge caps we have set are shown in Table 12.1.

**Table 12.1: Charge limits 2006-10 (nominal)**

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	2%	2%	0%	0%
Household unmeasured wastewater	2%	2%	0%	0%
Non-household unmeasured water	0%	0%	-2.1%	0%
Non-household unmeasured wastewater	0%	0%	-2.1%	0%
Measured water (with 25mm connection or greater)	0%	0%	-2.1%	0%
Measured wastewater (with 25mm connection or greater)	0%	0%	-2.1%	0%
Surface water drainage (excluding unmeasured domestic)	0%	0%	-2.1%	0%
Trade effluent	0%	0%	-2.1%	0%
Standard metered water connection (20mm)	0%	0%	-2.1%	0%
Standard metered wastewater connection (20mm)	0%	0%	-2.1%	0%
Overall weighted average charge increase	1.3%	1.3 %	-0.7%	0.0%

<sup>146</sup> About 400 household customers have a meter and pay for their water and sewerage service on this basis.

<sup>147</sup> We intend to make it a licence condition that the retail subsidiary of Scottish Water is bound by the retail price caps that are set in the final determination.

We show the effects of our retail charge limits on our standard customers based on our assumptions of inflation.

**Table 12.2: The RPI-X charge cap**

	2006-07	2007-08	2008-09	2009-10
Household unmeasured water	-0.5%	-0.5%	-2.5%	-2.5%
Household unmeasured waste water	-0.5%	-0.5%	-2.5%	-2.5%
Non-household unmeasured water	-2.5%	-2.5%	-4.6%	-2.5%
Non-household unmeasured waste water	-2.5%	-2.5%	-4.6%	-2.5%
Measured water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Measured waste water (with 25mm connection or greater)	-2.5%	-2.5%	-4.6%	-2.5%
Surface water drainage (excluding unmeasured domestic)	-2.5%	-2.5%	-4.6%	-2.5%
Trade effluent	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Standard metered waste water connection (20mm)	-2.5%	-2.5%	-4.6%	-2.5%
Overall weighted average price increase	-1.2%	-1.2%	-3.2%	-2.5%

These charge limits apply to the average of a basket of tariffs. There are specific rules about the balance of tariffs within each basket. Scottish Water is allowed to rebalance tariffs only if it can demonstrate that a change in the balance of tariffs would be more cost reflective. Such a rebalancing of tariffs within a tariff basket could mean that some customers will face an increase in their bill which is greater than the appropriate tariff basket charge cap.

## Unmeasured household customers

Household customers pay an amount that depends on the Council Tax Band of their home, it does not depend on their consumption of water or discharge of waste water.

We use the Band D charge because it is the reference point for Council Tax charging. It is higher than the average charge, which sits between Band B and Band C.

Table 12.3 shows the change in the Band D charge implied by our charge caps. This assumes that retail price inflation is 2.5% per year.

**Table 12.3: Nominal Band D charge 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£163.26	£166.53	£169.86	£169.86	£169.86
Waste water	£184.50	£188.19	£191.95	£191.95	£191.95
Total	£347.76	£354.72	£361.81	£361.81	£361.81

Table 12.4 shows the change in the average charge implied by our price caps. Again this assumes that RPI is in line with our forecast of 2.5%

**Table 12.4: Nominal average charge 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£137.30	£139.29	£142.46	£142.82	£143.19
Waste water	£153.75	£155.81	£159.37	£159.82	£160.26
Total	£291.05	£295.10	£301.83	£302.64	£303.44

## Measured household customers

Fewer than 1% of household customers have a meter. These customers pay a fixed charge based on the size of their meter connection and a volumetric rate based on how much water they consume. All household metered water customers currently have a standard 20mm connection. This is the smallest connection available.

We demonstrate the effects of our charge limits on measured households using the 'large house' standard customer. This customer uses 110m<sup>3</sup> of water per year, discharges 104m<sup>3</sup> of sewage and is a Council Tax Band H property (the basis for surface drainage charges).

The bill for our large house standard customer in 2005-06 is £652.85. Table 12.5 shows the change in the bill of our large house standard customer implied by our price caps. Again, we assume that the increase in the retail price index each year is 2.5%.

**Table 12.5: Large house standard customer nominal bills 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Water	£231.46	£231.46	£231.46	£226.59	£226.59
Sewerage	£273.79	£273.79	£273.79	£268.04	£268.04
Surface water drainage	£147.60	£147.60	£147.60	£144.50	£144.50
Total	£652.85	£652.85	£652.85	£639.14	£639.14

Table 12.7 shows the impact of the price caps on unmeasured non-domestic standard customers' bills from 2005-06 to 2009-10. Again, RPI is assumed to be 2.5%.

## Unmeasured household customers

Unmetered non-household customers pay for their water and sewerage service relative to the rateable value of their property. They pay two fixed charges for water, neither of which reflects their consumption: a minimum charge for access to the network and an additional charge that is a proportion of their rateable value. They pay three separate fixed charges for waste water: a minimum charge for accessing the network and two charges that are a proportion of their rateable value. One covers waste water and the second covers surface water and roads drainage

We illustrate the effect of our charge caps on unmeasured non-household customers with four separate standard customers, These are shown in Table 12.6.

**Table 12.6: Standard unmeasured non-domestic customers**

Customer name	Rateable value
Small newsagent /grocer	£200
Local hairdresser	£920
Sports club	£2,250
Supermarket	£30,000

Three separate tariff baskets affect unmeasured non-domestic customers. These are:

- non-household unmeasured water;
- non-household waste water; and
- surface water drainage.

**Table 12.7: Unmeasured non-household standard customer nominal bills 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Small newsagent/grocer</b>					
Water	£141.55	£141.55	£141.55	138.58	£138.58
Sewerage	£155.18	£155.18	£155.18	£151.92	£151.92
Surface water drainage	£7.34	£7.34	£7.34	£7.19	£7.19
<b>Total</b>	<b>£304.07</b>	<b>£304.07</b>	<b>£304.07</b>	<b>£297.68</b>	<b>£297.68</b>
<b>Local hairdresser</b>					
Water	£160.41	£160.41	£160.41	£157.05	£157.05
Sewerage	£185.35	£185.35	£185.35	£181.46	£181.46
Surface water drainage	£33.76	£33.76	£33.76	£33.05	£33.05
<b>Total</b>	<b>£379.53</b>	<b>£379.53</b>	<b>£379.53</b>	<b>£371.56</b>	<b>£371.56</b>
<b>Sports club</b>					
Water	£195.26	£195.26	£195.26	£191.16	£191.16
Sewerage	£241.08	£241.08	£241.08	£236.01	£236.01
Surface water drainage	£82.58	£82.58	£82.58	£80.84	£80.84
<b>Total</b>	<b>£518.91</b>	<b>£518.91</b>	<b>£518.91</b>	<b>£508.01</b>	<b>£508.01</b>
<b>Supermarket</b>					
Water	£922.31	£922.31	£922.31	£902.94	£902.94
Sewerage	£1,403.80	£1,403.80	£1,403.80	£1,374.32	£1,374.32
Surface water drainage	£1,101.00	£1,101.00	£1,101.00	£1,077.88	£1,077.88
<b>Total</b>	<b>£3,427.11</b>	<b>£3,427.11</b>	<b>£3,427.11</b>	<b>£3,355.14</b>	<b>£3,355.14</b>

The bills shown in Table 12.7 take no account any better deals that competition may bring.

## Measured non-household customers

Metered non-household customers pay a standing charge that depends on the size of their meter connection, and a volumetric charge based on how much water they consume. Non-household measured water customers with a standard 20mm connection are charged in the same way as metered household customers for water.

Larger meter connection sizes range from 25mm to 600mm. Annual water consumption up to 100,000m<sup>3</sup> is charged at the standard 20mm volumetric rate. Customers who use in excess of 100,000m<sup>3</sup> of water during the year receive a discount from the standard volumetric tariff for any consumption above the 100,000m<sup>3</sup> threshold. A second increased discount applies above 250,000m<sup>3</sup>. Customers who commit in

advance to using a minimum amount of water can obtain a larger discount on their consumption over 100,000m<sup>3</sup> and 250,000m<sup>3</sup>.

Non-household waste water customers pay a fixed charge based on the size of their water meter connection and a volumetric rate based on an assumption that 95% of their water consumption is returned to sewer.

The surface water drainage charge for non-household customers, whether metered or unmetered, is based on the rateable value of their properties.

We illustrate the effects of our charge limits on measured non-household customers using 13 separate standard customers. These are set out in Table 12.8.

**Table 12.8: Standard measured non-household customers**

Name	Water		Sewerage		
	Meters (no x size (mm))	Volume (m <sup>3</sup> )	Meters (no x size (mm))	Volume (m <sup>3</sup> )	Rateable value
Warehouse	1 x 20	10	1 x 20	9	£500
High school	1 x 25	2,000	1 x 25	1,900	£18,000
Hotel	1 x 50	15,000	1 x 50	14,250	£75,000
Convenience store	1 x 20	30	1 x 20	28.5	£5,000
Garage	1 x 20	100	1 x 20	95	£10,000
Large restaurant	1 x 20	500	1 x 20	475	£100,000
Large office	1 x 25	900	1 x 25	855	£750,000
Retail group	2 x 20 20 x 25 1 x 35	4,500	2 x 20 20 x 25 1 x 35	4,275	£1,700,000
Food manufacturer 1	2 x 25 1 x 80	50,000	2 x 25 1 x 80	47,500	£100,000
Food manufacturer 2	2 x 25 1 x 50 1 x 100	100,000	2 x 25 1 x 50 1 x 100	95,000	£260,000
Large manufacturer	1 x 150	175,000	1 x 150	166,250	£1,225,000
Brewers	2 x 25 1 x 100 1 x 150	600,000	2 x 25 1 x 100 1 x 150	150,000	£500,000

The bills of measured non-household customers are affected by five separate tariff baskets. They are:

- standard metered water 20mm;
- standard metered waste water 20mm;
- measured water with 25mm connection or greater;
- measured waste water with 25mm connection of greater; and
- surface water drainage.

Table 12.9 shows the impact our charge caps on measured non-household standard customers' bills from 2005-06 to 2009-10, assuming that RPI is 2.5%.

**Table 12.9: Measured non-domestic standard customer nominal bills 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Warehouse</b>					
Water	£142.73	£142.73	£142.73	£139.73	£139.73
Sewage	£145.30	£145.30	£145.30	£142.25	£142.25
Surface Water Drainage	£18.35	£18.35	£18.35	£17.96	£17.96
<b>Total</b>	<b>£306.38</b>	<b>£306.38</b>	<b>£306.38</b>	<b>£299.95</b>	<b>£299.95</b>
<b>High School</b>					
Water	£1,771.00	£1,771.00	£1,771.00	£1,733.81	£1,733.81
Sewage	£2,557.70	£2,557.70	£2,557.70	£2,503.99	£2,503.99
Surface Water Drainage	£660.60	£660.60	£660.60	£646.73	£646.73
<b>Total</b>	<b>£4,989.30</b>	<b>£4,989.30</b>	<b>£4,989.30</b>	<b>£4,884.52</b>	<b>£4,884.52</b>
<b>Hotel</b>					
Water	£12,837.00	£12,837.00	£12,837.00	£12,567.42	£12,567.42
Sewage	£18,737.25	£18,737.25	£18,737.25	£18,343.77	£18,343.77
Surface Water Drainage	£2,752.50	£2,752.50	£2,752.50	£2,694.70	£2,694.70
<b>Total</b>	<b>£34,326.75</b>	<b>£34,326.75</b>	<b>£34,326.75</b>	<b>£33,605.89</b>	<b>£33,605.89</b>
<b>Convenience store</b>					
Water	£175.30	£175.30	£175.30	£171.61	£171.61
Sewage	£186.74	£186.74	£186.74	£182.82	£182.82
Surface Water Drainage	£183.50	£183.50	£183.50	£179.65	£179.65
<b>Total</b>	<b>£545.53</b>	<b>£545.53</b>	<b>£545.53</b>	<b>£534.08</b>	<b>£534.08</b>
<b>Garage</b>					
Water	£224.44	£224.44	£224.44	£219.72	£219.72
Sewage	£263.41	£263.41	£263.41	£257.88	£257.88
Surface Water Drainage	£367.00	£367.00	£367.00	£359.29	£359.29
<b>Total</b>	<b>£854.85</b>	<b>£854.85</b>	<b>£854.85</b>	<b>£836.90</b>	<b>£836.90</b>
<b>Large restaurant</b>					
Water	£505.24	£505.24	£505.24	£494.63	£494.63
Sewage	£701.55	£701.55	£701.55	£686.82	£686.82
Surface Water Drainage	£3,670.00	£3,670.00	£3,670.00	£3,592.93	£3,592.93
<b>Total</b>	<b>£4,876.79</b>	<b>£4,876.79</b>	<b>£4,876.79</b>	<b>£4,774.38</b>	<b>£4,774.38</b>
<b>Large office</b>					
Water	£998.80	£998.80	£998.80	£977.83	£977.83
Sewage	£1,352.82	£1,352.82	£1,352.82	£1,324.41	£1,324.41
Surface Water Drainage	£27,525.00	£27,525.00	£27,525.00	£26,946.98	£26,946.98
<b>Total</b>	<b>£29,876.62</b>	<b>£29,876.62</b>	<b>£29,876.62</b>	<b>£29,294.21</b>	<b>£29,249.21</b>
<b>Retail group</b>					
Water	£11,845.47	£11,845.47	£11,845.47	£11,596.72	£11,596.72
Sewage	£13,614.83	£13,614.83	£13,614.83	£13,328.92	£13,328.92
Surface Water Drainage	£62,390.00	£62,390.00	£62,390.00	£61,079.81	£61,079.81
<b>Total</b>	<b>£87,850.30</b>	<b>£87,850.30</b>	<b>£87,850.30</b>	<b>£86,005.45</b>	<b>£86,005.45</b>

**Table 12.9: Measured non-domestic standard customer nominal bills 2005-06 to 2009-10 (cont.)**

	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Food manufacturer 1</b>					
Water	£42,545.00	£42,545.00	£42,545.00	£41,651.56	£41,651.56
Sewage	£62,212.50	£62,212.50	£62,212.50	£60,906.04	£60,906.04
Surface Water Drainage	£3,670.00	£3,670.00	£3,670.00	£3,592.93	£3,592.93
<b>Total</b>	<b>£108,427.50</b>	<b>£108,427.50</b>	<b>£108,427.50</b>	<b>£106,150.52</b>	<b>£106,150.52</b>
<b>Food manufacturer 2</b>					
Water	£87,397.00	£87,397.00	£87,397.00	£85,561.66	£85,561.66
Sewage	£126,732.00	£126,732.00	£126,732.00	£124,070.63	£124,070.63
Surface Water Drainage	£9,542.00	£9,542.00	£9,542.00	£9,341.62	£9,341.62
<b>Total</b>	<b>£223,671.00</b>	<b>£223,671.00</b>	<b>£223,671.00</b>	<b>£218,973.91</b>	<b>£218,973.91</b>
<b>Large manufacturer</b>					
Water	£144,094.00	£144,094.00	£144,094.00	£141,068.03	£141,068.03
Sewage	£232,580.25	£232,580.25	£232,580.25	£227,696.06	£227,696.06
Surface Water Drainage	£44,957.50	£44,957.50	£44,957.50	£44,013.39	£44,031.39
<b>Total</b>	<b>£421,631.75</b>	<b>£421,631.75</b>	<b>£421,631.75</b>	<b>£412,777.48</b>	<b>£412,777.48</b>
<b>Brewers</b>					
Water	£331,984.00	£331,984.00	£331,984.00	£325,012.34	£325,012.34
Sewage	£228,734.00	£228,734.00	£228,734.00	£223,930.59	£223,930.59
Surface Water Drainage	£18,350.00	£18,350.00	£18,350.00	£17,964.65	£17,964.65
<b>Total</b>	<b>£579,068.00</b>	<b>£579,068.00</b>	<b>£579,068.00</b>	<b>£566,907.57</b>	<b>£566,907.57</b>

## Trade effluent

Trade effluent customers pay an annual fixed charge on the basis of expected discharge of effluent and a variable rate based on the actual volume and strength of the effluent discharged.

In simple terms, the Mogden formula has four variables:

**R** (Reception) – this part of the formula is designed to cover the cost of the waste water system. The charge is in direct proportion to the volume of the discharge.

**V** (Volumetric costs) – this part of the formula covers costs for preliminary and primary treatment. It takes account of the amount of suspended solids in the discharge.

**S** (Solids costs) – this part of the formula covers costs for treating the sludge resulting from primary treatment.

It takes account of suspended solids in the discharge.

**B** (Biological costs) – this part of the formula covers costs for secondary treatment. It takes account of the organic load in the discharge.

The basic Mogden formula is:  $Charge = R + V + \alpha S + \beta B$ . It is widely used both in Britain and internationally.

The price of trade effluent will therefore vary depending on the type of discharge. It will also vary depending on the sewerage company's prices for each of the four elements of trade effluent collection and treatment.

Scottish Water uses two derivatives of the basic Mogden formula to assess the standing charge and the volumetric charge.

To assess the volumetric charge, Scottish Water uses

the following formula:

$$C_o = [R_o + V_o + B_o \times (O_t/O_s) + S_o \times (S_t/S_s)] \times AVD$$

Where:

- R<sub>o</sub>** = reception charge (pence per cubic metre)
- V<sub>o</sub>** = volumetric charge (pence per cubic metre)
- B<sub>o</sub>** = biological/secondary treatment charge (pence per cubic metre)
- S<sub>o</sub>** = sludge/solid treatment charge (pence per cubic metre)
- S<sub>s</sub>** = average total suspended solids for the Scottish sewerage system

Scottish Average Sewerage System

- O<sub>s</sub>** = average settled chemical oxygen demand (COD) for the Scottish sewerage system
- S<sub>s</sub>** = average total suspended solids for the Scottish sewerage system

**AVD** = Actual volume discharged

**O<sub>t</sub>** = fixed strength of trade effluent discharged

**S<sub>t</sub>** = fixed strength of trade effluent discharged

The formula assesses the volumetric charge based on the actual volume and strength of the trade effluent discharged.  $R_o$ ,  $V_o$ ,  $B_o$  and  $S_o$  are all charge factors (pence per cubic metre) set by Scottish Water. The factor  $O_t/O_s$  reflects the relative COD or biological treatment needed by the trade effluent in comparison with the system average.

The factor  $S_t/S_s$  reflects the discharged trade effluent's required treatment of solids relative to the system average.

Scottish Water assesses the standing charge using the following derivative of the Mogden formula:

$$C_a = [CDV \times (R_a + V_a) + (B_a \times sBODI) + (S_a \times TSSI)] \times 365$$

Where:

- R<sub>a</sub>** = reception charge (pence per cubic metre per day)
- V<sub>a</sub>** = volumetric/primary charge (pence per cubic metre per day)
- B<sub>a</sub>** = biological/secondary capacity charge (pence per kilogram of load per day)
- S<sub>a</sub>** = sludge/solid capacity charge (pence per kilogram of load per day)
- CDV** = consented daily volume according to the trade effluent consent
- sBODI** = settled biochemical oxygen demand load according to the trade effluent consent
- TSSI** = total suspended solids load according to the trade effluent consent

It is more difficult to define standard trade effluent customers than it is to define water customers or customers who discharge standard-strength sewage. There are just over 2,000 customers in Scotland who have trade effluent agreements. Scottish Water uses 31 different categories to group these customers and their size can range from a small garage to a large petrochemical firm.

Because of this, the aim in developing standard customers for trade effluent is not to represent all trade effluent customers. However, we hope to indicate the types of industries that have trade effluent agreements, and to show different varieties of strength and volume and different sizes of customer.

We use six standard customers for trade effluent. These are shown in Table 12.10.

**Table 12.10: Trade effluent standard customers**

Name	Volume		Load		Average strengths	
	Annual (m <sup>3</sup> )	Daily (m <sup>3</sup> )	Total suspended solids (kg/day)	Biological oxygen demand (kg/day)	Total suspended solids (mg/l)	Settled chemical oxygen demand (mg/l)
Bakery	200	0.55	0.5	0.75	575	1,600
Clothing manufacturer	12,000	32.9	1	1	20	300
Abattoir	90,000	246.6	150	250	600	1,500
Electronics business	550,000	1,507	15	50	10	75
Printers	10,000	27.4	5	40	100	2,500
Distillery	150,000	411.0	7	55	15	200

Trade effluent customers are impacted only by the charge cap on our trade effluent tariff basket.

Table 12.11 shows the effect on total bills of our charge caps on trade effluent prices. We assume that retail price inflation is 2.5%.

**Table 12.11: Bills for trade effluent standard customers (nominal) 2005-06 to 2009-10**

	2005-06	2006-07	2007-08	2008-09	2009-10
Bakery	£294.24	£294.24	£294.24	£288.06	£288.06
Clothing manufacturer	£5,560.53	£5,560.53	£5,560.53	£5,443.76	£5,443.76
Abattoir	£118,796.65	£118,796.65	£118,796.65	£116,301.92	£116,301.92
Electronics business	£211,029.12	£211,029.12	£211,029.12	£206,597.51	£206,597.51
Printers	£15,240.28	£15,240.28	£15,240.28	£14,920.23	£14,920.23
Distillery	£67,163.59	£67,163.59	£67,163.59	£65,753.15	£65,753.15

If we assume that tariffs in England and Wales change in line with the price caps set by Ofwat (and inflation is 2.5%), we can estimate the bill paid by our standard customers in England and Wales in 2009-10.

**Table 12.12: Effects on trade effluent standard customers' bills 2005-06 to 2009-10**

Customer name	Scottish Water 2009-10 projected	Lowest England and Wales (2009-10)	Highest England and Wales (2009-10)	Median England and Wales 2009-10	Average England and Wales (2009-10)
Bakery	£288.06	£191.68	£798.61	£311.45	£368.89
Clothing manufacturer	£5,443.76	£3,711.87	£19,129.64	£8,755.60	£9,500.60
Abattoir	£116,301.92	£80,060.08	£350,127.69	£122,237.66	£153,151.40
Electronics business	£206,597.51	£114,933.05	£705,613.13	£280,686.09	£355,420.81
Printers	£14,920.24	£10,547.16	£46,155.38	£15,999.20	£20,494.01
Distillery	£65,753.16	£41,232.13	£218,272.91	£82,427.68	£102,633.48

## Overall effects on bills of charge limits

Table 12.13 summarises the impact of our charge caps on each of our standard customers.

**Table 12.13: Effects on all standard customers' bills 2005-06 to 2009-10**

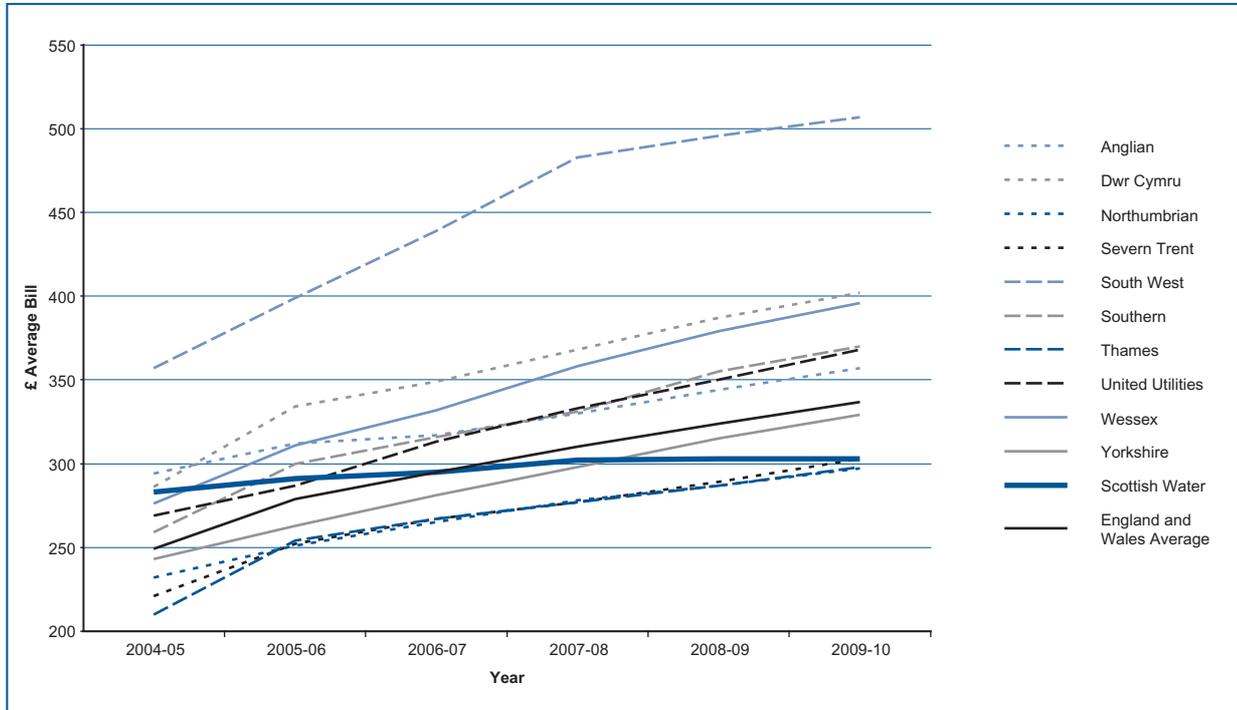
Customer name	Customer type	Total bill 2005-06	Nominal bill 2009-10	% change in nominal bill
Band D unmeasured household	Unmeasured domestic	£347.76	£361.81	4.04%
Large house	Measured domestic	£652.85	£639.14	-2.10%
Small newsagent/grocer	Unmeasured non-domestic	£304.07	£297.68	-2.10%
Local hairdresser	Unmeasured non-domestic	£379.53	£371.56	-2.10%
Sports club	Unmeasured non-domestic	£518.91	£508.01	-2.10%
Supermarket	Unmeasured non-domestic	£3,427.11	£3,355.14	-2.10%
Warehouse	Measured non-domestic	£306.38	£299.95	-2.10%
High school	Measured non-domestic	£4,989.30	£4,884.52	-2.10%
Hotel	Measured non-domestic	£34,326.75	£33,605.89	-2.10%
Convenience store	Measured non-domestic	£545.53	£534.08	-2.10%
Garage	Measured non-domestic	£854.85	£836.90	-2.10%
Large restaurant	Measured non-domestic	£4,876.79	£4,774.38	-2.10%
Large office	Measured non-domestic	£29,876.62	£29,249.21	-2.10%
Retail group	Measured non-domestic	£87,850.30	£86,005.45	-2.10%
Food manufacturer 1	Measured non-domestic	£108,427.50	£106,150.52	-2.10%
Food manufacturer 2	Measured non-domestic	£223,671.00	£218,973.91	-2.10%
Large manufacturer	Measured non-domestic	£421,631.75	£412,777.48	-2.10%
Brewers	Measured non-domestic	£579,068.00	£566,907.57	-2.10%
Bakery	Trade effluent	£ 294.24	£ 288.06	-2.10%
Clothing manufacturer	Trade effluent	£5,560.53	£5,443.76	-2.10%
Abattoir	Trade effluent	£118,796.65	£116,301.92	-2.10%
Electronics business	Trade effluent	£211,029.12	£206,597.51	-2.10%
Printers	Trade effluent	£15,240.28	£14,920.24	-2.10%
Distillery	Trade effluent	£67,163.59	£65,753.16	-2.10%

## Conclusion

In this chapter we have explained the effects that our charge limits will have on standard customers.

We can compare the projected average domestic charge for 2006-10 for each of the water and sewerage companies in England and Wales and compare this to Scottish Water's average domestic bill. This comparison is shown in Figure 12.1. It shows that by 2009-10, average bills in Scotland will be amongst the lowest in the UK.

**Figure 12.1: Comparison of household bills in Scotland and England and Wales 2006-10<sup>148</sup>**



Customers in Scotland are now beginning to see the benefits of access to public sector capital, the financial discipline that we began to enforce at the last Review and most importantly the progress by Scottish Water in improving its efficiency.

We trust that Scottish Water will continue to build on its recent improvements.

<sup>148</sup> Scottish Water benefits from the lower cost of capital. Customers would likely pay a little more if the level of service provided in Scotland was the same (in all respects) as in England and Wales.



# Section 4: Charges and their impact on customers

## Chapter 13: Outlook for 2010 to 2014

### Introduction

In this chapter, we outline the prospects for customer charges at the next Strategic Review of Charges, which is likely to cover the period 2010-14.

Charges increased dramatically in the period between 1996 and 2004. However, during the last two years of the 2002-06 regulatory control period real charge increases have been much more modest.

In this draft determination we set out our analysis of the scope for Scottish Water to reduce its costs further and improve its level of services to customers. We have adopted the same approach to assessing the scope for improvement as Ofwat and, as a result, Scottish Water has the same opportunity to out-perform the targets that we have set as a company south of the border has to out-perform Ofwat's price determination. We have developed incentive-based regulation to ensure that Scottish Water faces a consistent tight budget constraint, but that there is mechanism to adjust charges if management face cost pressures that are outside their control.

We believe that by 2010 Scottish Water could have further narrowed the gap in operating cost and capital efficiency between itself and the companies in England and Wales. However, it is still likely that Scottish Water will have some scope to improve both its relative and absolute efficiency further in the 2010-14 regulatory control period.

### Prospects for charges

In the 2006-10 regulatory control period no group of non-household customers that is currently paying tariffs within Scottish Water's scheme of charges will face a real increase in the tariffs they pay. All household customers (except second home owners and some who benefitted from transitional relief) will similarly see a reduction in their tariffs in real terms.

We have set indicative charge caps for the period 2010-14. These charge caps are broadly in line with retail price inflation.

The indicative charge caps are set out in Table 13.1.

**Table 13.1: Indicative charge caps for 2010-14**

Year	2010-11	2011-12	2012-13	2013-14
K Factor <sup>149</sup>	0.0%	0.0%	0.0%	0.1%

These charge caps have assumed:

- Scottish Water hits, but does not beat, its targets for the 2006-10 regulatory control period;
- An investment programme of £1,800 million in 2003-04 prices;
- Capital inflation of 3%;
- No change in the key financial ratios; and
- Borrowing from the public sector (public expenditure) of £182 million per year is available.

The actual charge caps for 2010-2014 will depend on Scottish Water's performance in the regulatory control period and on decisions of the Scottish Ministers with regard to their investment objectives and the level of public expenditure that they are prepared to make available.

We have modelled a number of different scenarios. These are set out in Table 13.2.

**Table 13.2: Future charge caps scenarios**

Level of investment (2003-04 prices)	<ul style="list-style-type: none"> <li>• £1,700 million</li> <li>• £1,800 million</li> <li>• £1,900 million</li> <li>• £2,000 million</li> <li>• £2,100 million</li> <li>• £2,200 million</li> </ul>
Public expenditure	<ul style="list-style-type: none"> <li>• Limited to £182 million nominal</li> <li>• Unlimited</li> </ul>
Change in targeted key financial ratios	<ul style="list-style-type: none"> <li>• No change</li> <li>• One or more ratios may fail</li> </ul>
Capital expenditure inflation	<ul style="list-style-type: none"> <li>• 3%</li> <li>• 2%</li> </ul>

### Prospects for investment

The Quality and Standards consultation document, issued by the Scottish Executive, highlighted the need for continuing investment in the water industry. In this draft

<sup>149</sup> Adjustment in tariff basket income relative to the rate of retail price inflation

determination we have been able to consider carefully the level of investment that is required to deliver both the 'essential' and the 'desirable' objectives set out by Ministers. Our move towards the regulatory capital value method of setting charges has ensured that in the 2010-14 regulatory control period, customers will meet the costs of the level of service they receive.

The main drivers of investment in the 2010-14 regulatory control period are likely to include:

- improving customer service;
- the Water Framework Directive;
- lead standards;
- revisions to the Bathing Waters Directive;
- disposal of sludge; and
- better management of drainage and sewerage systems.

It is not clear what level of investment is likely to be required. We have therefore modelled a range of scenarios from £1,700 million to £2,200 million in 2003-04 prices. We set out our results in Tables 13.3 and 13.4. Table 13.3 assumes that capital inflation is 2%, in line with consumer price inflation. Table 13.4 assumes that capital expenditure inflation runs at 3%. The same charge cap is applied in each year of the regulatory control period.

**Table 13.3: Indicative real annual charge caps for 2010-14 (COPI =2%)**

Investment in 2003-04 prices <sup>150</sup>	Compliant with all key financial ratios ratio		Does not comply with funds from operations	
	Public expenditure fixed at £182 m a year	No Limit	Public expenditure fixed at £182 m a year	No Limit
£1,700 million	-0.4%	-0.4%	-4.3%	-4.3%
£1,800 million	-0.1%	-0.1%	-4.0%	-4.0%
£1,900 million	+0.3%	+0.3%	-3.5%	-3.8%
£2,000 million	+0.6%	+0.6%	-2.2%	-3.6%
£2,100 million	+1.0%	+1.0%	-0.7%	-3.4%
£2,200 million	+1.3%	+1.3%	+0.9%	-3.2%

<sup>150</sup> Percentages rounded to one decimal place.

**Table 13.4: Indicative real annual charge caps for 2010-14 (COPI =3%)**

Investment in 2003-04 prices	Compliant with all key financial ratios		Does not comply with funds from operations ratio	
	Public expenditure fixed at £182 m a year	No Limit	Public expenditure fixed at £182 m a year	No Limit
£1,700 million	-0.3%	-0.3%	-4.1%	-4.1%
£1,800 million	+0.0%	+0.0%	-3.9%	-3.9%
£1,900 million	+0.4%	+0.4%	-2.9%	-3.7%
£2,000 million	+0.7%	+0.7%	-1.5%	-3.5%
£2,100 million	+1.1%	+1.1%	+0.1%	-3.3%
£2,200 million	+1.7%	+1.5%	+1.7%	-3.0%

## The challenges ahead

There are considerable challenges during the current regulatory control period. These include delivering further much needed improvement in operating cost and capital expenditure efficiency targets and a large investment programme. The introduction of the new framework for competition in non-household retail services also represents a major challenge for Scottish Water's retail subsidiary. Scottish Water will need to develop an appropriate relationship with retail new entrants, who will, in effect, represent a small number of demanding customers.

The challenges for Scottish Water in the following review period (ie 2010-14) will be similar in some ways. It is always more challenging to close the last elements of any efficiency gap. The focus of the investment programme may well have changed slightly; there will be greater focus on understanding the condition and performance of the underground infrastructure to ensure that customers receive a reliable water supply. This will require a much greater reliance on performance information than has previously been the case. This information takes time to collect and interpret so it is important that the management of the industry allocates sufficient resources to it now.

## Greater efficiency

Our expectation is that Scottish Water will close a further 60% of the gap between its own performance and that of the frontier companies in England and Wales. In its final

determinations, Ofwat noted that it believed the scope for improvement in the frontier companies was 0.8% (water service) to 1.0% (sewerage service) a year. Ofwat's recent final determinations of price have assumed that frontier companies south of the border improve their performance by 0.3% (water service) to 0.5% (sewerage service) a year. Table 13.5 illustrates the likely efficiency gap between Scottish Water and the frontier companies in 2010.

**Table 13.5: Analysis of remaining operating expenditure efficiency gap in 2009-10**

Total out-performance of Ofwat target by frontier companies	% cost reduction needed to match comparator companies, depending on extent of gap closure by Scottish Water					
	60% gap closure	70% gap closure	80% gap closure	90% gap closure	100% gap closure	110% gap closure
0%	14%	11%	7%	4%	0%	-4%
5%	18%	15%	12%	9%	5%	1%
10%	22%	20%	17%	13%	10%	6%

The largest single threat to the survival of the water industry in the public sector is its inefficiency. Continuing to build on the substantial progress of the current regulatory control period is therefore of the highest priority.

## Retail competition

Retail competition will offer a choice to most non-household customers in Scotland from 2008. This is likely to lead to a quite marked improvement in customer service and almost certainly to more flexibility in methods of payment. It may even lead to some limited reductions in bills for some customers.

This need not threaten Scottish Water. If customer service is improved and if wholesale tariffs are made broadly cost reflective then the impact on Scottish Water's total revenues will be minimal. Scottish Water's retail subsidiary will have to ensure that it maintains as flexible a cost base as possible. In particular, it would seem prudent to avoid increasing its proportion of fixed costs.

## Conclusion

We believe that this draft determination for 2006-10 offers customers reassurance that price stability is not being achieved at the cost of future large increases in bills. There should not be a need for large real increases in water and sewerage bills unless there is a further very large increase in the investment programme.

In preparing this draft determination, we have drawn on the work of the Office of Water Services in England and Wales.  
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Water Industry Commissioner for Scotland  
Ochil House Springkerse Business Park Stirling FK7 7XE  
telephone: 01786 430 200  
fax: 01786 462 018  
email: [draftdetermination@watercommissioner.co.uk](mailto:draftdetermination@watercommissioner.co.uk)  
[www.watercommissioner.co.uk](http://www.watercommissioner.co.uk)

June 2005