Section 7
Assessment of Revenue Cap

Section 7: Chapter 28
Assessment of Revenue Cap: Financial Assumptions

a) Introduction

In this section of my Review I outline my financial assumptions for the proposed Scottish Water and for the existing three authorities. In Chapters 29 to 31, I cover the alternative assumptions used for the three existing authorities. These would apply should the Scottish Water initiative not proceed for any reason. In Chapter 32, I present the results of the financial model for Scottish Water and in Chapter 33 I discuss the results of my risk analysis for Scottish Water. In Chapters 34 to 36, I outline the alternative results for the existing three authorities (in the event that Scottish Water does not proceed) and, in Chapter 37, my analysis of the risk to public expenditure in the three authority scenario. Chapter 38 indicates the implications for customer charges and Chapter 39 discusses the outlook for the next regulatory review period, 2006-10.

This chapter sets out the assumptions that I have used for the proposed Scottish Water. I have used these assumptions to generate the appropriate revenue caps. The detail of the financial model is described in Chapter 10.

b) Macro-economic assumptions

I have used the inflation rates set out in the Table 28.1.

Table 28.1: Inflation rate assumptions

	2001-02 to 2016-17
Operating expenditure	2.5%
Capital expenditure	1.5%

I have assumed that the total real cost of long-tem debt remains at 2.3%. I add my estimate of operating cost and inflation to this real cost to determine the interest cost of new loans.

Table 28.2: Assumptions on interest cost of new loans

Real	2.3%
Inflation	2.5%
Actual	4.8%

I have used the current Retail Price Index to fix operating expenditure inflation. I have used the Construction Operators Price Index (COPI) to set capital investment inflation.

i) Sources of information for 1998-99 to 2000-01

I have taken information for 1998-99 and 1999-2000 from the audited accounts. My Annual Return is the source of 2000-01 data. I have received confirmation from the authorities that their Annual Return data is wholly consistent with their 2000-01 audited accounts.

c) Scottish Water

This chapter outlines the assumptions that I have used in my financial model for Scottish Water. It should be read in conjunction with Chapter 10, which describes the functionality of the financial model. The assumptions in this chapter result in the revenue caps for Scottish Water outlined in Chapter 32.

My assumptions include the appropriate inflation index.

d) Balance sheet

i) Assets and depreciation

Capital expenditure

I have re-profiled, in consultation with industry management, the original water authority submissions to the Quality and Standards process. My phased profile of the investment programme is shown below. This investment is split between infrastructure, 'quality' and the capital element of the proposed Spend to Save expenditure (see Chapters 15, 19 and 21).

Table 28.3: Investment programme profile

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Total infrastructure spend	£106.4m	£97.4m	£100.0m	£187.6m	£213.7m	£242.4m	£243.0m	£246.7m	£250.1m
Total quality spend	£358.5m	£409.1m	£413.3m	£482.0m	£456.3m	£354.7m	£347.5m	£347.8m	£302.9m
Spend to Save capital expenditure	£0.0m	£15.0m	£35.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Table 28.4: Assumptions on useful asset life of asset additions

	2001-02 onwards
I year	0.0%
3 years	17.0%
4 years	1.0%
5 years	2.0%
6 years	2.0%
7 years	0.0%
10 years	7.0%
15 years	0.0%
20 years	20.0%
25 years	15.0%
30 years	0.0%
40 years	5.0%
60 years	18.0%
80 years	0.0%
100 years	0.0%
Infinite	13.0%

Table 28.5: Depreciation rates derived from assumed asset life

	2001-02 onwards
1 year	100.0%
3 years	33.3%
4 years	25.0%
5 years	20.0%
6 years	16.7%
7 years	14.3%
10 years	10.0%
15 years	6.7%
20 years	5.0%
25 years	4.0%
30 years	3.3%
40 years	2.5%
60 years	1.7%
80 years	1.3%
100 years	1.0%
Infinite	0.0%

I have divided the 'quality' additions to the asset base by their expected useful life. My assumptions are set out in Table 28.4. Infrastructure investment is expensed in the year of purchase through the income and expenditure account. I have assumed that the Spend to Save capital expenditure allocation relates to IT and is therefore depreciated over 3 years.

Depreciation

I have applied a full annual depreciation charge to an asset purchased during the year. The rates of depreciation directly reflect the asset useful lives and are as shown in Table 28.5.

Modified historic cost revaluation

I have made cumulative modified historic cost adjustments to asset cost and to accumulated depreciation from the start of the 2001-02 financial year. From the current year onward, I have made annual adjustments to incorporate annual capital expenditure inflation.

Asset disposals

I have assumed that assets are sold with no residual value at the end of their useful lives. Any proceeds from the sale of asset disposals are therefore assumed to generate a profit on disposal equal to the selling price. My expectation of the proceeds from disposals (and hence my expectation of profit on disposal) are set out in Table 28.6

ii) Capital expenditure efficiency

I have applied my efficiency targets to the capital expenditure figures detailed above. I have excluded Spend to Save capital expenditure. I have split the assumptions for capital expenditure efficiency targets between my efficiency target on actual physical capital expenditure and my separate targeted efficiency on capitalised labour (see Chapter 19). The capital expenditure efficiency targets are shown in Table 28.7.

iii) Other assets and liabilities

I have calculated other asset and liability categories as a

Table 28.6: Assumed proceeds from asset disposals

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Asset disposal proceeds	£0.0m	£8.4m	£8.8m	£9.2m	£9.7m	£0.0m	£0.0m	£0.0m	£0.0m

Table 28.7: Capital expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Capital expenditure efficiency	0.0%	14.0%	19.9%	25.2%	30.9%	31.7%	32.8%	34.1%	35.1%
Capitalised labour efficiency	0.0%	14.0%	19.9%	26.0%	30.4%	33.0%	34.2%	35.5%	36.5%

Table 28.8: Assumptions on other assets and liabilities

	2001-02 onwards
Stocks	0.9%
Debtors	19.0%
Cash	0.0%
Current liabilities	-25.0%
Creditors > 1 year	-2.0%
Provisions	£0.0m

percentage of revenue in the year. The percentages used are in line with the results of historic data (1996-97 to 1999-2000). I have made no allowance for provisions since these costs are expected to be incorporated into Spend to Save operating expenditure. My assumptions are shown in Table 28.8.

iv) Government and other loans

I have taken the historical loan balances from the note in the 1999-2000 financial statements concerning loan maturities by interest rate. I have assumed the repayment of these loans at their expected maturity. I have applied the appropriate weighted average cost of debt to reflect the total debt outstanding at each particular interest rate. These loan balances are shown in Table 28.9.

All new loan balances result from the net inflow/(outflow) from the cash flow statement. I have taken these to be long-term loans and they therefore do not fall due within the period of the model. I have assumed that the authorities would choose long-term loans due to the existence of a downward sloping yield curve (see Chapter 16). I have used my estimate of the long-term cost of debt for all new loans.

v) Income and expenditure account

I have assumed that the chargeable base for domestic customers will grow in line with the housing market. I have used information available from Scottish Housing. I have assumed that annual growth in the housing stock will average 0.7%. This allows for demolition and for subdivision of existing properties.

I have not assumed any change in chargeable base for customers receiving secondary services. I have assumed a 15% annual increase in the trade effluent chargeable base.

My assumptions for the chargeable base by customer category are shown in Table 28.10.

Table 28.9: Existing loan base by interest rate and date of maturity

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
4.5%	£0m	£0m	£0m	£8,750m	£11,250m	£11,250m	£11,250m	£8,636m	£14,696m
5.5%	£0m	£1,667m	£1,667m	£2,917m	£1,278m	£1,278m	£1,278m	£2,396m	£5,889m
6.5%	£1,024m	£2,426m	£2,426m	£1,667m	£856m	£857m	£858m	£4,373m	£6,566m
7.5%	£10,685m	£23,189m	£23,189m	£24,334m	£15,213m	£15,213m	£15,213m	£15,041m	£18,384m
8.5%	£4,437m	£12,499m	£12,499m	£5,960m	£8,522m	£8,522m	£8,522m	£5,117m	£2,056m
9.5%	£1,912m	£6,150m	£6,150m	£6,643m	£8,903m	£8,903m	£8,903m	£4,291m	£5,814m
10.5%	£2,412m	£3,468m	£3,468m	£6,304m	£10,640m	£10,640m	£10,640m	£6,405m	£3,812m
11.5%	£87m	£226m	£226m	£3,737m	£5,534m	£5,534m	£5,534m	£1,925m	£378m
12.5%	£21m	£3m	£3m	£0m	£278m	£279m	£280m	£277m	£0m
13.5%	£1m	£28m	£28m	£209m	£181m	£181m	£181m	£0m	£7m
14.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£8m
TOTAL	**£20,579m**	**£49,656m**	**£49,656m**	**£60,521m**	**£62,655m**	**£62,657m**	**£62,659m**	**£48,461m**	**£57,610m**

Table 28.10: Assumed rate of annual change in chargeable customer category

	2001-02	2002-03 onwards
Domestic customers	100.0%	100.7%
Other non-domestic	100.0%	100%
Large user	79.3%	100%
Trade effluent	75.8%	115%
Secondary	100.0%	100%

vi) Revenue and capital grants

I have not included any revenue or capital grants since I do not expect these to be material.

Operating expenditure

I have taken controllable base operating cost from the 2000-01 annual accounts of the three authorities. I have adjusted operating costs for any inter-authority trading. This operating cost allowance increases in line with inflation. I have set the level of operating expenditure efficiency in line with my targets (see Chapter 18). The levels of base controllable operating expenditure and operating efficiency are detailed in Table 28.11.

Merger efficiencies

Merger efficiencies are the savings that I expect to result from the merger of the three authorities (see Chapter 20). They are shown in Table 28.12.

Public Private Partnership (PPP) charges

I have used the water authority estimates of PPP charges. My source is the Strategic Business Plans submitted by the authorities. I have combined their estimates to calculate the position for Scotland. PPP costs within the Strategic Business Plans are fixed by contract. I therefore do not expect the estimates to change materially. The assumed PPP charges are shown in Table 28.13.

Spend to Save

I have based Spend to Save operating expenditure on my assessment of the requirements for Spend to Save. I have split this between operating expenditure and capital expenditure in the proportion which I expect the authorities to use this budget (see Chapter 21). The profile of expected Spend to Save can be seen in Table 28.14.

Level of service increment

Level of service increment represents the additional new operating expenditure that I will allow the authorities to spend on improving their level of service (see Chapter 18). This is shown in Table 28.15.

Table 28.11: Operating expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Controllable base operating expenditure	£360.1m	£321.8m	£297.5m	£288.4m	£278.7m	£277.1m	£275.5m	£273.9m	£272.3m
Operating expenditure efficiency	4.1%	16.4%	24.6%	28.7%	32.8%	34.8%	36.7%	38.6%	40.5%

Table 28.12: Assumed merger efficiency savings

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Merger efficiencies	£0.0m	£20.0m	£25.0m	£29.3m	£29.3m	£29.3m	£29.3m	£29.3m	£29.3m

Table 28.13: Assumed Public Private Partnership (PPP) Charges

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
PPP charges	£57.0m	£111.6m	£116.7m	£118.8m	£122.7m	£125.8m	£129.0m	£132.2m	£135.5m

Table 28.14: Assumed profile of Spend to Save operating expenditure

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Spend to Save operating expenditure	£0.0m	£40.0m	£85.0m	£25.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Table 28.15: Assumed level of service operating expenditure

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Level of service increment	£0.4m	£2.5m	£4.6m	£6.8m	£9.0m	£17.4m	£21.4m	£25.6m	£30.0m

Table 28.16: Inter-authority trading balance for 2000-01

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Inter-authority sales	£7.6m	£7.8m	£8.0m	£8.2m	£8.4m	£8.6m	£8.8m	£9.0m	£9.2m
Inter-authority costs	£5.2m	£5.3m	£5.4m	£5.6m	£5.7m	£5.8m	£6.0m	£6.1m	£6.3m

Table 28.17: Assumed net profit from new business

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
New business net profit	£0.1m	£0.5m	£1.1m	£1.4m	£1.8m	£2.1m	£2.1m	£2.2m	£2.2m

Table 28.18: Scottish Executive resource accounting baseline budget

	2001-02	2002-03	2003-04	2004-05	2005-06
Baseline budget	£302.3m	£314.3m	£299.7m	£299.7m	£299.7m

vii) Inter-authority balances

I have estimated inter-authority balances from both the revenue and costs of the proposed Scottish Water. The three authorities supplied these inter-authority trading balances for 2000-01.

viii) New business net profit

I have assumed the net profit from activities in the financial model as shown in Table 28.17. I have estimated this profit from information received from the water authorities on spending to date and on research on new business activity in England and Wales (see Chapter 27).

(ix) Baseline Budget under resource accounting and budgeting

The Scottish Executive has set the resource accounting baseline budget to which Scottish Water must adhere. These limits are set as shown in Table 28.18.

Section 7: Chapter 29

Assessment of Revenue Cap: Financial Assumptions – East of Scotland Water Authority

This chapter outlines the assumptions which I have used in my financial model for East of Scotland Water Authority. This chapter should be read in conjunction with Chapter 10, which describes the functionality of the financial model. The assumptions in this chapter result in the revenue caps for East of Scotland Water Authority outlined in Chapter 40.

All my assumptions include the appropriate inflation index.

a) Balance sheet

i) Assets and depreciation

Capital expenditure

I have re-profiled, in consultation with industry management the original East of Scotland Water Authority submissions to the Quality and Standards process. My phased profile of the investment programme is shown in Table 29.1 below. This investment is split between infrastructure, 'quality' and the capital element of the proposed Spend to Save expenditure (see Chapters 15, 19 and 21).

I have divided the 'quality' additions to the asset base by their expected useful life. My assumptions are set out in Table 29.2. Infrastructure investment is expensed in the year of purchase through the profit and loss account. I have assumed that the Spend to Save capital expenditure allocation relates to IT and is therefore depreciated over three years.

Depreciation

I have applied a full annual depreciation charge to an asset purchased during the year. The rates of depreciation directly reflect the asset useful lives and are as shown in Table 29.3.

Table 29.2: Assumptions on useful asset life of asset additions

	2001–02 onwards
I year	0.0%
3 years	17.0%
4 years	1.0%
5 years	2.0%
6 years	2.0%
7 years	0.0%
10 years	7.0%
15 years	0.0%
20 years	20.0%
25 years	15.0%
30 years	0.0%
40 years	5.0%
60 years	18.0%
80 years	0.0%
100 years	0.0%
Infinite	13.0%

Table 29.3: Depreciation rates derived from assumed asset life

	2001–02 onwards
1 year	100.0%
3 years	33.3%
4 years	25.0%
5 years	20.0%
6 years	16.7%
7 years	14.3%
10 years	10.0%
15 years	6.7%
20 years	5.0%
25 years	4.0%
30 years	3.3%
40 years	2.5%
60 years	1.7%
80 years	1.3%
100 years	1.0%
Infinite	0.0%

Table 29.1: Investment programme profile

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Total infrastructure spend	£31.7m	£30.1m	£28.0m	£48.6m	£60.5m	£54.7m	£55.5m	£56.3m	£57.2m
Total quality Spend	£99.8m	£107.6m	£123.6m	£111.7m	£117.2m	£125.8m	£127.6m	£129.6m	£131.5m
Spend to Save capital expenditure	£0.0m	£4.7m	£10.9m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Modified historic cost revaluation

I made cumulative modified historic cost adjustments to asset cost and to accumulated depreciation from the start of the 2001-02 financial year. From the current year onward, I have made annual adjustments to incorporate annual capital expenditure inflation.

Asset disposals

I assumed that assets are sold with no residual value at the end of their useful lives. Any proceeds from the sale of asset disposals are therefore assumed to generate a profit on disposal equal to the selling price. My expectation of the proceeds from disposals (and hence my expectation of profit on disposal) are as shown in Table 29.4.

ii) Capital expenditure efficiency

I applied my efficiency targets to the capital expenditure figures detailed above. I excluded Spend to Save capital expenditure. I split the assumptions for capital expenditure efficiency targets between my efficiency target on actual physical capital expenditure and my separate targeted efficiency on capitalised labour (see Chapter 19). The capital expenditure efficiency targets are shown in Table 29.5.

The targets for the proposed Scottish Water are set so as to close 80% of the efficiency gap between the privatised water and sewerage companies of England and Wales and the three water authorities in Scotland. I have assumed that should East of Scotland Water Authority remain a separate organisation, it would achieve the proportions of the annual efficiency targets outlined in Table 29.6.

iii) Other assets and liabilities

I calculated other asset and liability categories as a percentage of revenue in the year. The percentages used are in line with the results of historic data (1996-97 to 1999-00). I made no allowance for provisions since these costs are expected to be incorporated into Spend to Save operating expenditure. My assumptions are shown in Table 29.7.

Table 29.7: Assumptions on other assets and liabilities

	2001–02 onwards
Stocks	0.9%
Debtors	19.0%
Cash	0.0%
Current liabilities	-25.0%
Creditors > 1 year	-2.0%
Provisions	£0.0m

Table 29.4: Assumed proceeds from asset disposals

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Asset disposal proceeds	£0.0m	£1.1m	£1.2m	£1.2m	£1.2m	£0.0m	£0.0m	£0.0m	£0.0m

Table 29.5: Capital expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Capital expenditure efficiency	0.0%	18.0%	24.0%	28.0%	34.0%	35.4%	36.8%	38.2%	39.8%
Capitalised labour efficiency	0.0%	18.0%	24.0%	29.0%	33.3%	37.1%	38.6%	40.2%	41.8%

Table 29.6: Assumed achievement of capital expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06
Achievement of efficiency target (Capital expenditure efficiency)	100%	100%	79.6%	72.8%	62.5%
Achievement of efficiency target (capitalised labour)	100%	100%	78.0%	68.9%	62.5%

iv) Government and other loans

I have taken the historical loan balances from the note in the 1999-2000 financial statements concerning loan maturities by interest rate. I have assumed the repayment of these loans at their expected maturity. I have applied the appropriate weighted average cost of debt to reflect the total debt outstanding at each particular interest rate. These loan balances are shown in Table 29.8.

All new loan balances result from the net inflow/(outflow) from the cash flow statement. I have taken these to be long-term loans and they therefore do not fall due within the period of the model. I have assumed that the authorities would choose long-term loans due to the existence of a downward sloping yield curve (see Chapter 16). I have used my estimate of the long-term cost of debt for all new loans.

b) Income and expenditure account

I have assumed that the chargeable base for domestic customers will grow in line with the housing market. I have used information available from Scottish Housing. I have assumed that annual growth in the housing stock will average 0.7%. This allows for demolition and for subdivision of existing properties.

I have not assumed any change in chargeable base for customers receiving secondary services. I have assumed a 15% annual increase in the trade effluent chargeable base.

Table 29.9: Assumed rate of annual change in chargeable base by customer category

	2001–02	2002–03 onwards
Domestic customers	100.0%	100.7%
Other non-domestic	100.0%	100%
Large user	85.0%	100%
Trade effluent	85.0%	115%
Secondary	100.0%	100%

My assumptions for the chargeable base by customer category are as shown in Table 29.9.

i) Revenue and capital grants

I have not included any revenue or capital grants since I do not expect these to be material.

Operating expenditure

I have taken controllable base operating cost from the 2000-01 annual accounts of the three authorities. I have adjusted operating costs for any inter-authority trading. This operating cost allowance increases in line with inflation. I have set the level of operating expenditure efficiency in line with my targets (see Chapter 18). The levels of base controllable operating expenditure and operating efficiency are detailed in Table 29.10.

Table 29.8: Existing loan base by interest rate and date of maturity

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
4.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£6,667m
5.5%	£0m	£0m	£0m	£0m	£28m	£28m	£28m	£28m	£1,857m
6.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£1,619m
7.5%	£10,000m	£14,658m	£14,658m	£14,658m	£7,086m	£7,086m	£7,086m	£7,086m	£3,095m
8.5%	£1,944m	£1,005m	£1,005m	£1,005m	£3,554m	£3,554m	£3,554m	£3,554m	£1,148m
9.5%	£1,004m	£771m	£771m	£771m	£1,416m	£1,416m	£1,416m	£1,416m	£3,898m
10.5%	£1,143m	£658m	£658m	£658m	£2,807m	£2,807m	£2,807m	£2,807m	£2,340m
11.5%	£45m	£45m	£45m	£45m	£1,099m	£1,099m	£1,099m	£1,099m	£304m
12.5%	£0m	£0m	£0m	£0m	£262m	£262m	£262m	£262m	£0m
13.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£4m
14.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£4m
TOTAL	**£14,136m**	**£17,137m**	**£17,137m**	**£17,137m**	**£16,252m**	**£16,252m**	**£16,252m**	**£16,252m**	**£20,936m**

Table 29.10: Operating expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Controllable base operating expenditure	£101.3m	£94.0m	£94.7m	£96.2m	£97.7m	£97.9m	£98.1m	£98.4m	£98.8m
Operating expenditure efficiency	3.1%	12.3%	18.4%	21.5%	24.5%	27.6%	30.5%	33.2%	35.9%

Table 29.11: Assumed achievement of operating expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06
Achievement of efficiency target	100%	100%	75.0%	67.9%	62.5%

Table 29.12: Assumed Public Private Partnership (PPP) charges

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
PPP charges	£23.0m	£30.0m	£33.0m	£34.0m	£35.0m	£35.9m	£36.8m	£37.7m	£38.7m

Table 29.13: Assumed profile of Spend to Save operating expenditure

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Spend to Save operating expenditure	£0.0m	£12.4m	£26.4m	£7.8m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Table 29.14: Assumed level of service operating expenditure

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Level of service increment	£0.0m	£0.8m	£1.7m	£2.6m	£3.6m	£4.6m	£5.9m	£7.3m	£8.7m

The operating efficiency targets for East of Scotland Water Authority are set at a percentage of the targets set for Scotland. The targets for Scotland are based on achieving 80% of the efficiency gap between England and Wales and Scotland. The phasing of efficiencies for East of Scotland Water Authority under Scottish Water ensures that the 80% gap is achieved by 2005-06. The proportion of these targets achieved should East of Scotland Water Authority remain a separate authority is shown in Table 29.11.

Public Private Partnership (PPP) charges

I have used the water authority estimates of PPP charges. My source is the Strategic Business Plans submitted by the authorities. I have combined their estimates to calculate the position for Scotland. PPP costs within the Strategic Business Plans are fixed by contract. I therefore do not expect the estimates to change materially. The assumed charges can be seen in Table 29.12.

Spend to Save

I have based Spend to Save operating expenditure on my assessment of the requirements for Spend to Save. I have split this between operating expenditure and capital expenditure in the proportion which I expect the authorities to use this budget (see Chapter 21). The profile of expected Spend to Save can be seen in Table 29.13.

Level of service increment

Level of service increment represents the additional new operating expenditure that I will allow the authorities to spend on improving their level of service (see Chapter 18). The assumed expenditure can be seen in Table 29.14.

Table 29.15: Assumed net profit from new business

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
New business net profit	£0.0m	£0.2m	£0.4m	£0.4m	£0.4m	£0.7m	£0.7m	£0.8m	£0.8m

Table 29.16: Scottish Executive resource accounting baseline budget

	2001–02	2002–03	2003–04	2004–05	2005–06
Baseline budget	£83.8m	£87.1m	£83.1m	£83.1m	£83.1m

Table 29.17: Scottish Executive resource accounting alternative baseline budget

	2001–02	2002–03	2003–04	2004–05	2005–06
Baseline budget	£83.8m	£77.1m	£75.4m	£40.0m	£49.8m

ii) New business net profit

I have assumed the net profit shown in Table 29.15 from activities in the financial model. I have estimated this profit from information received from the water authorities on spending to date and on research on new business activity in England and Wales (see Chapter 27).

iii) Baseline Budget under resource accounting and budgeting

The Scottish Executive has set the resource accounting baseline budget to which East of Scotland Water Authority must adhere. These limits are set as shown in Table 29.16.

The assumptions have also been used with an alternative baseline budget. The new phasing gives a more equitable price profile across all three authorities. These limits are set as shown in Table 29.17.

Section 7: Chapter 30

Assessment of Revenue Cap: Financial Assumptions – North of Scotland Water Authority

This chapter outlines the assumptions that I have used in my financial model for North of Scotland Water Authority. This chapter should be read in conjunction with Chapter 10, which describes the functionality of the financial model. The assumptions in this chapter result in the revenue caps for North of Scotland Water Authority outlined in Chapter 40.

My assumptions include the appropriate inflation index.

a) Balance sheet

i) Assets and depreciation

Capital expenditure

I have re-profiled, in consultation with industry management, the original water authority submissions to the Quality and Standards process. My phased profile of the investment programme is shown in Table 30.1 below. This investment is split between infrastructure, 'quality' and the capital element of the proposed spend to save expenditure (see Chapters 15, 19 and 21).

I have divided the 'quality' additions to the asset base by their expected useful life. My assumptions are set out in Table 30.2. Infrastructure investment is expensed in the year of purchase through the profit and loss account. I have assumed that the Spend to Save capital expenditure allocation relates to IT and is therefore depreciated over three years.

Depreciation

I have applied a full annual depreciation charge to an asset purchased during the year. The rates of depreciation directly reflect the asset useful lives and are as shown in Table 30.3.

Table 30.2: Assumptions on useful asset life of asset additions

	2001–2002 onwards
I year	0.0%
3 years	17.0%
4 years	1.0%
5 years	2.0%
6 years	2.0%
7 years	0.0%
10 years	7.0%
15 years	0.0%
20 years	20.0%
25 years	15.0%
30 years	0.0%
40 years	5.0%
60 years	18.0%
80 years	0.0%
100 years	0.0%
Infinite	13.0%

Table 30.3: Depreciation rates derived from assumed asset life

	2000–01 onwards
1 year	100.0%
3 years	33.3%
4 years	25.0%
5 years	20.0%
6 years	16.7%
7 years	14.3%
10 years	10.0%
15 years	6.7%
20 years	5.0%
25 years	4.0%
30 years	3.3%
40 years	2.5%
60 years	1.7%
80 years	1.3%
100 years	1.0%
Infinite	0.0%

Table 30.1: Investment programme profile

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Total infrastructure spend	£32.3m	£42.1m	£42.9m	£65.7m	£74.6m	£95.9m	£94.3m	£95.8m	£96.9m
Total quality spend	£119.8m	£151.0m	£126.4m	£169.4m	£141.0m	£130.5m	£120.0m	£116.9m	£68.5m
Spend to Save capital expenditure	£0.0m	£3.5m	£8.1m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Modified historic cost revaluation

I have made cumulative modified historic cost adjustments to asset cost and to accumulated depreciation from the start of the 2001-02 financial year. From the current year onward, I have made annual adjustments to incorporate annual capital expenditure inflation.

Asset disposals

I have assumed that assets are sold with no residual value at the end of their useful lives. Any proceeds from the sale of asset disposals are therefore assumed to generate a profit on disposal equal to the selling price. My expectation of the proceeds from disposals (and hence my expectation of profit on disposal) are as set out in Table 30.4.

ii) Capital expenditure efficiency

I have applied my efficiency targets to the capital expenditure figures detailed above. I have excluded Spend to Save capital expenditure. I have split the assumptions for capital expenditure efficiency targets between my efficiency target on actual physical capital expenditure and my separate targeted efficiency on capitalised labour (see Chapter 19). The capital expenditure efficiency targets are shown in Table 30.5.

The targets for the proposed Scottish Water are set so as to close 80% of the efficiency gap between the privatised water and sewerage companies of England and Wales and the three water authorities in Scotland. I have assumed that should North of Scotland Water Authority remain a separate organisation it would achieve the proportions of the annual efficiency targets outlined in Table 30.6 below.

iii) Other assets and liabilities

I have calculated other asset and liability categories as a percentage of revenue in the year. The percentages used are in line with the results of historic data (1996-97 to 1999-2000). I have made no allowance for provisions since these costs are expected to be incorporated into Spend to Save operating expenditure. My assumptions are shown in Table 30.7.

Table 30.7: Assumptions on other assets and liabilities

	2001–2002 onwards
Stocks	0.9%
Debtors	19.0%
Cash	0.0%
Current liabilities	–25.0%
Creditors > 1 year	–2.0%
Provisions	£0.0m

Table 30.4: Assumed proceeds from asset disposals

Asset disposal	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
proceeds	£0.0m	£1.2m	£1.2m	£1.2m	£1.2m	£0.0m	£0.0m	£0.0m	£0.0m

Table 30.5: Capital expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Capital expenditure efficiency	0.0%	18.0%	24.0%	28.0%	34.0%	35.4%	36.8%	38.2%	39.8%
Capitalised labour efficiency	0.0%	18.0%	24.0%	29.0%	33.3%	37.1%	38.6%	40.2%	41.8%

Table 30.6: Assumed achievement of capital expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06
Achievement of efficiency target (Capital expenditure efficiency)	100%	100%	79.6%	72.8%	62.5%
Achievement of efficiency target (capitalised labour)	100%	100%	78.0%	68.9%	62.5%

iv) Government and other loans

I have taken the historical loan balances from the note in the 1999-2000 financial statements concerning loan maturities by interest rate. I have assumed the repayment of these loans at their expected maturity. I have applied the appropriate weighted average cost of debt to reflect the total debt outstanding at each particular interest rate. These loan balances are shown in Table 30.8.

All new loan balances result from the net inflow/(outflow) from the cash flow statement. I have taken these to be long-term loans and they therefore do not fall due within the period of the model. I have assumed that the authorities would choose long-term loans due to the existence of a downward sloping yield curve (see Chapter 16). I have used my estimate of the long-term cost of debt for all new loans. The existing loan base is shown in Table 30.8.

b) Income and expenditure account

I have assumed that the chargeable base for domestic customers will grow in line with the housing market. I have used information available from Scottish Housing. I have assumed that annual growth in the housing stock will average 0.7%. This allows for demolition and for subdivision of existing properties.

I have not assumed any change in chargeable base for customers receiving secondary services. I have assumed a 15% annual increase in the trade effluent chargeable base.

Table 30.9: Assumed rate of annual change in chargeable base by customer category

	2001-02	2002-03 onwards
Domestic customers	100.0%	100.7%
Other non-domestic	100.0%	100%
Large user	45.0%	100%
Trade effluent	45.0%	115%
Secondary	100.0%	100%

My assumptions for the chargeable base by customer category are as set out in Table 30.9.

i) Revenue and capital grants

I have not included any revenue or capital grants since I do not expect these to be material.

Operating expenditure

I have taken controllable base operating cost from the 2000-01 annual accounts of the three authorities. I have adjusted operating costs for any inter-authority trading. This operating cost allowance increases in line with inflation. I have set the level of operating expenditure efficiency in line with my targets (see Chapter 18). The levels of base controllable operating expenditure and operating efficiency are detailed in Table 30.10.

Table 30.8: Existing loan base by interest rate and date of maturity

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
4.5%	£0m	£0m	£0m	£0m	£2,500m	£2,500m	£2,500m	£2,500m	£1,894m
5.5%	£0m	£1,667m	£1,667m	£1,667m	£0m	£0m	£0m	£0m	£1,664m
6.5%	£0m	£1,667m	£1,667m	£1,667m	£855m	£855m	£855m	£855m	£1,429m
7.5%	£69m	£1,549m	£1,549m	£1,549m	£0m	£0m	£0m	£0m	£7,333m
8.5%	£1,261m	£1,013m	£1,013m	£1,013m	£1,026m	£1,026m	£1,026m	£1,026m	£371m
9.5%	£518m	£218m	£218m	£218m	£1,833m	£1,833m	£1,833m	£1,833m	£874m
10.5%	£1,112m	£488m	£488m	£488m	£2,675m	£2,675m	£2,675m	£2,675m	£549m
11.5%	£42m	£42m	£42m	£42m	£785m	£785m	£785m	£785m	£33m
12.5%	£21m	£0m	£0m	£0m	£15m	£15m	£15m	£15m	£0m
13.5%	£1m	£28m	£28m	£28m	£0m	£0m	£0m	£0m	£4m
14.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£4m
TOTAL	**£3,024m**	**£6,672m**	**£6,672m**	**£6,672m**	**£9,689m**	**£9,689m**	**£9,689m**	**£9,689m**	**£14,155m**

Table 30.10: Operating expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Controllable base operating expenditure	£90.5m	£81.6m	£81.7m	£82.8m	£83.9m	£84.1m	£84.4m	£84.8m	£85.1m
Operating expenditure efficiency	3.9%	15.4%	23.1%	27.0%	30.9%	33.6%	36.3%	38.8%	41.3%

Table 30.11: Assumed achievement of operating expenditure efficiency targets

	2001–02	2002–03	2003–04	2004–05	2005–06
Achievement of efficiency target	100%	100%	75.0%	67.9%	62.5%

Table 30.12: Assumed Public Private Partnership (PPP) charges

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
PPP charges	£23.0m	£47.3m	£48.4m	£49.7m	£50.9m	£52.2m	£53.5m	£54.8m	£56.2m

Table 30.13: Assumed profile of Spend to Save operating expenditure

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Spend to Save operating expenditure	£0.0m	£9.3m	£19.7m	£5.8m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Table 30.14: Assumed level of service operating expenditure

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Level of service increment	£0.4m	£0.9m	£1.3m	£1.7m	£2.1m	£7.0m	£8.3m	£9.8m	£0.0m

The operating efficiency targets for North of Scotland Water Authority are set at a percentage of the targets set for Scotland. The targets for Scotland are based on achieving 80% of the efficiency gap between England and Wales and Scotland. The phasing of efficiencies for North of Scotland Water Authority under Scottish Water ensures that the 80% gap is achieved by 2005-06. The proportion of these targets achieved should North of Scotland Water Authority remain a separate authority is shown in Table 30.11.

Public Private Partnership (PPP) charges

I have used the water authority estimates of PPP charges. My source is the Strategic Business Plans submitted by the authorities. I have combined their estimates to calculate the position for Scotland. PPP costs within the Strategic Business Plans are fixed by contract. I therefore do not expect the estimates to change materially. The assumed charges are shown in Table 30.12.

Spend to Save

I have based Spend to Save operating expenditure on my assessment of the requirements for Spend to Save. I have split this between operating expenditure and capital expenditure in the proportion which I expect the authorities to use this budget (see Chapter 21). The profile of assumed Spend to Save can be seen in Table 30.13.

Level of service increment

Level of service increment represents the additional new operating expenditure that I will allow the authorities to spend on improving their level of service (see Chapter 18). The assumed level of expenditure can be seen in Table 30.14.

Table 30.15: Assumed net profit from new business

New business net profit	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
	£0.0m	£0.0m	£0.0m	£0.1m	£0.1m	£0.2m	£0.2m	£0.2m	£0.2m

Table 30.16: Scottish Executive resource accounting baseline budget

Baseline budget	2001–02	2002–03	2003–04	2004–05	2005–06
	£112.1m	£116.6m	£111.1m	£111.1m	£111.1m

Table 30.17: Scottish Executive resource accounting alternative baseline budget

Baseline budget	2001–02	2002–03	2003–04	2004–05	2005–06
	£112.1m	£136.6m	£118.8m	£145.2m	£133.0m

ii) New business net profit

I have assumed the net profit from activities in the financial model set out in Table 30.15. I have estimated this profit from information received from the water authorities on spending to date and on research on new business activity in England and Wales (see Chapter 27).

iii) Baseline Budget under resource accounting and budgeting

The Scottish Executive has set the resource accounting baseline budget to which North of Scotland Water Authority must adhere. These limits are set as shown in Table 30.16.

The assumptions have also been used with an alternative baseline budget. The new phasing gives a more equitable price profile across all three authorities. These limits are set as shown in Table 30.17.

Section 7: Chapter 31

Assessment of Revenue Cap: Financial Assumptions – West of Scotland Water Authority

This chapter outlines the assumptions that I have used in my financial model for West of Scotland Water Authority. This chapter should be read in conjunction with Chapter 10, which describes the functionality of the financial model. The assumptions in this chapter result in the revenue caps for West of Scotland Water Authority outlined in Chapter 40.

My assumptions include the appropriate inflation index.

a) Balance sheet

i) Assets and depreciation

Capital expenditure

I have re-profiled, in consultation with industry management, the original water authority submissions to the Quality and Standards process. My phased profile of the investment programme is shown in Table 31.1 below. This investment is split between infrastructure, 'quality' and the capital element of the proposed Spend to Save expenditure (see Chapters 15, 19 and 21).

I have divided the 'quality' additions to the asset base by their expected useful life. My assumptions are set out in Table 31.2. Infrastructure investment is expensed in the year of purchase through the profit and loss account. I have assumed that the Spend to Save capital expenditure allocation relates to IT and is therefore depreciated over three years.

Depreciation

I have applied a full annual depreciation charge to an asset purchased during the year. The rates of depreciation directly reflect the asset useful lives and are as shown in Table 31.3.

Table 31.2: Assumptions on useful asset life of asset additions

	2001-2002 onwards
I year	0.0%
3 years	17.0%
4 years	1.0%
5 years	2.0%
6 years	2.0%
7 years	0.0%
10 years	7.0%
15 years	0.0%
20 years	20.0%
25 years	15.0%
30 years	0.0%
40 years	5.0%
60 years	18.0%
80 years	0.0%
100 years	0.0%
Infinite	13.0%

Table 31.3: Depreciation rates derived from assumed asset life

	2001-02 onwards
1 year	100.0%
3 years	33.3%
4 years	25.0%
5 years	20.0%
6 years	16.7%
7 years	14.3%
10 years	10.0%
15 years	6.7%
20 years	5.0%
25 years	4.0%
30 years	3.3%
40 years	2.5%
60 years	1.7%
80 years	1.3%
100 years	1.0%
Infinite	0.0%

Table 31.1: Investment programme profile

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Total infrastructure spend	£42.5m	£30.6m	£34.2m	£81.2m	£89.1m	£87.5m	£88.8m	£90.1m	£91.5m
Total quality spend	£138.9m	£169.8m	£186.0m	£218.8m	£218.9m	£131.2m	£133.2m	£135.2m	£137.2m
Spend to Save capital expenditure	£0.0m	£6.9m	£16.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Modified historic cost revaluation

I have made cumulative modified historic cost adjustments to asset cost and to accumulated depreciation from the start of the 2001-02 financial year. From the current year onward, I have made annual adjustments to incorporate annual capital expenditure inflation.

Asset disposals

I have assumed that assets are sold with no residual value at the end of their useful lives. Any proceeds from the sale of asset disposals are therefore assumed to generate a profit on disposal equal to the selling price. My expectation of the proceeds from disposals (and hence my expectation of profit on disposal) are as shown in Table 31.4.

ii) Capital expenditure efficiency

I have applied my efficiency targets to the capital expenditure figures detailed above. I have excluded Spend to Save capital expenditure. I have split the assumptions for capital expenditure efficiency targets between my efficiency target on actual physical capital expenditure and my separate targeted efficiency on capitalised labour (see Chapter 19). The capital expenditure efficiency targets are shown in Table 31.5.

The targets for the proposed Scottish Water are set so as to close 80% of the efficiency gap between the privatised water and sewerage companies of England and Wales and the three water authorities in Scotland. I have assumed that should West of Scotland Water Authority remain a separate organisation it would achieve the proportion of the annual efficiency targets outlined in Table 31.6 below.

iii) Other assets and liabilities

I have calculated other asset and liability categories as a percentage of revenue in the year. The percentages used are in line with the results of historic data (1996-97 to1999-2000). I have made no allowance for provisions since these costs are expected to be incorporated into Spend to Save operating expenditure. My assumptions are shown in Table 31.7.

Table 31.7: Assumptions on other assets and liabilities

	2001-02 onwards
Stocks	0.9%
Debtors	19.0%
Cash	0.0%
Current liabilities	-25.0%
Creditors > 1 year	-2.0%
Provisions	£0.0m

Table 31.4: Assumed proceeds from asset disposals

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Asset disposal proceeds	£0.0m	£1.5m	£1.6m	£1.6m	£1.7m	£0.0m	£0.0m	£0.0m	£0.0m

Table 31.5: Capital expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Capital expenditure efficiency	0.0%	18.0%	24.0%	28.0%	34.0%	35.4%	36.8%	38.2%	39.8%
Capitalised labour efficiency	0.0%	18.0%	24.0%	29.0%	33.3%	37.1%	38.6%	40.2%	41.8%

Table 31.6: Assumed achievement of capital expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06
Achievement of efficiency target (capital expenditure efficiency)	100%	100%	79.7%	72.8%	62.5%
Achievement of efficiency target (capitalised labour)	100%	100%	78.0%	68.9%	62.5%

iv) Government and other loans

I have taken the historical loan balances from the note in the 1999-2000 financial statements concerning loan maturities by interest rate. I have assumed the repayment of these loans at their expected maturity. I have applied the appropriate weighted average cost of debt to reflect the total debt outstanding at each particular interest rate. These loan balances are shown in Table 31.8.

All new loan balances result from the net inflow/(outflow) from the cash flow statement. I have taken these to be long-term loans and they therefore do not fall due within the period of the model. I have assumed that the authorities would choose long-term loans due to the existence of a downward sloping yield curve (see Chapter 16). I have used my estimate of the long-term cost of debt for all new loans. The existing loan base is shown in Table 31.8.

b) Income and expenditure account

I have assumed that the chargeable base for domestic customers will grow in line with the housing market. I have used information available from Scottish Housing. I have assumed that annual growth in the housing stock will average 0.7%. This allows for demolition and for subdivision of existing properties.

I have not assumed any change in chargeable base for customers receiving secondary services. I have assumed a 15% annual increase in the trade effluent chargeable base.

Table 31.9: Assumed rate of annual change in chargeable base by customer category

	2001-02	2002-03 onwards
Domestic customers	100.0%	100.7%
Other non-domestic	100.0%	100%
Large user	79.0%	100%
Trade Effluent	79.0%	115%
Secondary	100.0%	100%

My assumptions for the chargeable base by customer category are as shown in Table 31.9.

i) Revenue and capital grants

I have not included any revenue or capital grants since I do not expect these to be material.

Operating expenditure

I have taken controllable base operating cost from the 2000-01 annual accounts of the three authorities. I have adjusted operating costs for any inter-authority trading. This operating cost allowance increases in line with inflation. I have set the level of operating expenditure efficiency in line with my targets (see Chapter 18). The levels of base controllable operating expenditure and operating efficiency are detailed in Table 31.10.

Table 31.8: Existing loan base by interest rate and date of maturity

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
4.5%	£0m	£0m	£0m	£8,750m	£8,750m	£8,750m	£8,750m	£6,136m	£6,136m
5.5%	£0m	£0m	£0m	£1,250m	£1,250m	£1,250m	£1,250m	£2,368m	£2,368m
6.5%	£1,024m	£759m	£759m	£0m	£1m	£2m	£3m	£3,518m	£3,518m
7.5%	£616m	£6,982m	£6,982m	£8,127m	£8,127m	£8,127m	£8,127m	£7,955m	£7,955m
8.5%	£1,232m	£10,481m	£10,481m	£3,942m	£3,942m	£3,942m	£3,942m	£537m	£537m
9.5%	£390m	£5,161m	£5,161m	£5,654m	£5,654m	£5,654m	£5,654m	£1,042m	£1,042m
10.5%	£157m	£2,322m	£2,322m	£5,158m	£5,158m	£5,158m	£5,158m	£923m	£923m
11.5%	£0m	£139m	£139m	£3,650m	£3,650m	£3,650m	£3,650m	£41m	£41m
12.5%	£0m	£3m	£3m	£0m	£1m	£2m	£3m	£0m	£0m
13.5%	£0m	£0m	£0m	£181m	£181m	£181m	£181m	£0m	£0m
14.5%	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m	£0m
TOTAL	**£3,419m**	**£25,847m**	**£25,847m**	**£36,712m**	**£36,714m**	**£36,716m**	**£36,718m**	**£22,520m**	**£22,520m**

Table 31.10: Operating expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Controllable base operating expenditure	£168.3m	£146.2m	£145.4m	£146.7m	£148.0m	£148.7m	£149.4m	£150.1m	£151.0m
Operating expenditure efficiency	4.8%	19.3%	29.0%	33.8%	38.7%	41.1%	43.5%	45.7%	47.9%

Table 31.11: Assumed achievement of operating expenditure efficiency targets

	2001-02	2002-03	2003-04	2004-05	2005-06
Achievement of efficiency target	100%	100%	75.0%	67.9%	62.5%

Table 31.12: Assumed Public Private Partnership (PPP) charges

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
PPP charges	£11.0m	£34.3m	£35.3m	£35.1m	£36.8m	£37.7m	£38.7m	£39.6m	£40.6m

Table 31.13: Assumed profile of Spend to Save operating expenditure

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Spend to Save operating expenditure	£0.0m	£18.3m	£38.9m	£11.5m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

Table 31.14: Assumed level of service operating expenditure

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Level of service increment	£0.0m	£0.8m	£1.6m	£2.4m	£3.3m	£5.8m	£7.1m	£8.5m	£10.0m

The operating efficiency targets for West of Scotland Water Authority are set at a percentage of the targets set for Scotland. The targets for Scotland are based on achieving 80% of the efficiency gap between England and Wales and Scotland. The phasing of efficiencies for West of Scotland Water Authority under Scottish Water ensures that the 80% gap is achieved by 2005-06. The proportion of these targets achieved should West of Scotland Water Authority remain a separate authority is shown in Table 31.11.

Public Private Partnership (PPP) charges

I have used the water authority estimates of PPP charges. My source is the Strategic Business Plans submitted by the authorities. I have combined their estimates to calculate the position for Scotland. PPP costs within the Strategic Business Plans are fixed by contract. I therefore do not expect the estimates to change materially. The assumed charges are shown in Table 31.12.

Spend to Save

I have based Spend to Save operating expenditure on my assessment of the requirements for Spend to Save. I have split this between operating expenditure and capital expenditure in the proportion which I expect the authorities to use this budget (see Chapter 18). The profile of assumed Spend to Save can be seen in Table 31.13.

Level of service increment

Level of service increment represents the additional new operating expenditure that I will allow the authorities to spend on improving their level of service (see Chapter 18). The assumed level of expenditure can be seen in Table 31.14.

Table 31.15: Assumed net profit from new business

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
New business net profit	£0.1m	£0.4m	£0.6m	£0.9m	£1.2m	£1.2m	£1.2m	£1.3m	£1.3m

Table 31.16: Scottish Executive resource accounting baseline budget

	2001-02	2002-03	2003-04	2004-05	2005-06
Baseline budget	£106.4m	£110.6m	£105.5m	£105.5m	£105.5m

Table 31.17: Scottish Executive resource accounting alternative baseline budget

	2001-02	2002-03	2003-04	2004-05	2005-06
Baseline budget	£106.4m	£100.6m	£105.5m	£114.5m	£116.9m

ii) New business net profit

I have assumed the net profit from activities in the financial model set out in Table 31.15. I have estimated this profit from information received from the water authorities on spending to date and on research on new business activity in England and Wales (see Chapter 27).

iii) Baseline Budget under resource accounting and budgeting

The Scottish Executive has set the resource accounting baseline budget to which West of Scotland Water Authority must adhere. These limits are set as shown in Table 31.16.

The assumptions have also been used with an alternative baseline budget. The new phasing gives a more equitable price profile across all three authorities. These limits are set as shown in Table 31.17.

Section 7: Chapter 32

Assessment of Revenue Cap: Scottish Water – Financial Results

This chapter describes the principal results of my financial model. It summarises the costs and required revenue of the proposed Scottish Water in each year of the current regulatory period (i.e. 2001-02 to 2005-06). I also outline the extent of the industry's need for public expenditure during the next four years. This requirement is within the public expenditure limits set out in the letter from the Minister that commissioned this Review. The next chapter provides a summary of the formal risk analysis to these financial results, which was also requested in the commissioning letter.

a) Financial summary

My aim is to keep the revenue that is raised from customers to the lowest possible level, whilst allowing a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total is still lower than it is in England and Wales. The increased share of domestic revenue does, however, improve the predictability of the proposed Scottish Water's revenues.

Table 32.1: Indicative revenue breakdown

Revenue split by customer type	2001-02	2002-03	2003-04	2004-05	2005-06
Domestic revenue	£495.0m	£534.4m	£578.0m	£606.2m	£610.4m
% change on previous year	18.2%	8.0%	8.2%	4.9%	0.7%
Non-domestic revenue	£248.2m	£266.1m	£285.8m	£296.4m	£281.6m
% change on previous year	7.4%	7.2%	7.4%	3.7%	(5.0%)
Large user revenue	£41.9m	£41.9m	£41.9m	£41.9m	£35.9m
% change on previous year	(23.0%)	0.0%	0.0%	0.0%	(14.2%)
Trade effluent revenue	£16.7m	£19.2m	£22.1m	£25.4m	£29.3m
% change on previous year	(12.9%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£31.6m	£33.9m	£36.4m	£37.7m	£37.7m
% change on previous year	5.3%	7.2%	7.4%	3.7%	0.0%
Total revenue	£833.4m	£895.4m	£964.1m	£1,007.6m	£994.9m
% change on previous year	10.6%	7.4%	7.7%	4.5%	(1.3%)
Inter-authority revenue	(£7.6m)	(£7.8m)	(£8.0m)	(£8.2m)	(£8.4m)
Net profit from non core business activities	£0.1m	£0.5m	£1.1m	£1.4m	£1.8m
Revenue (excluding inter-authority)	£825.9m	£888.2m	£957.2m	£1,000.9m	£988.3m
% change on previous year	n/a	7.5%	7.8%	4.6%	(1.3%)
Domestic revenue as % of total	59.9%	60.2%	60.4%	60.6%	61.8%
Non-domestic revenue as % of total	40.1%	39.8%	39.6%	39.4%	38.2%

Table 32.2: Operating costs summary

	2001-02	2002-03	2003-04	2004-05	2005-06
Base operating costs:					
Base	£375.5m	£384.8m	£394.5m	£404.3m	£414.4m
New	£0.4m	£2.5m	£4.6m	£6.8m	£9.0m
Efficiency target	(£15.4m)	(£63.0m)	(£96.9m)	(£115.9m)	(£135.8m)
Total	£360.5m	£324.3m	£302.1m	£295.2m	£287.7m
Spend to Save	£0.0m	£40.0m	£85.0m	£25.0m	£0.0m
Operating costs					
PPP costs	£57.0m	£111.6m	£116.7m	£118.8m	£122.7m
Merger savings	£0.0m	(£20.0m)	(£25.0m)	(£29.3m)	(£29.3m)
Depreciation Charge:					
Non-infrastructure assets charge	£110.7m	£133.5m	£161.7m	£173.3m	£173.8m
Infrastructure Charge	£149.7m	£127.0m	£123.3m	£183.5m	£190.9m
Total	£260.4m	£260.5m	£285.0m	£356.8m	£364.7m
Inter-authority costs	(£5.2m)	(£5.3m)	(£5.4m)	(£5.6m)	(£5.7m)
Total operating cost	**£672.7m**	**£711.0m**	**£758.3m**	**£760.8m**	**£740.1m**

My recommended overall revenue cap is indicated in Table 32.1. This table also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 54% of total operating cost. The share of base operating cost increases to 87% of the total if I exclude depreciation. PPP costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

I expect the proposed Scottish Water to achieve my targets and this will result in base operating cost falling to 38% of total operating cost. Base operating cost will account for 74% of the total, excluding depreciation. Table 32.2 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 8% of total operating costs in 2001-02. This increases to 17% by 2005-06. I have not set the proposed Scottish Water an efficiency target for its PPP contracts; however, the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for the proposed Scottish Water. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts on the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 28. This also increases the total depreciation charge. I believe that the depreciation charge, that I have estimated is more in line

with the actual expected life of the assets of the proposed Scottish Water. The costs are summarised in Table 32.2.

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure that relates to environmental or public health compliance. My capital efficiency targets, shown in Table 32.3, reduce the actual burden on customers considerably.

Table 32.4 details the cash flow of the proposed Scottish Water. In 2002-03, customer revenue funds 86% of the total expenditure of Scottish Water. Scottish Water increases its outstanding debt by a further £150.2 million to cover the cash outflow in the first year of the Review period.

By 2005-06, revenue from customers is sufficient to fund all the expenditure of the proposed Scottish Water and to make a small repayment of debt. Scottish Water will, however, still have increased its total debt by nearly £300 million over the four years of this regulatory period. This will position the authority well for the future, since it is important to retain financial flexibility and the ability to borrow.

This will certainly improve the outlook for customer prices if there is a need to invest to meet a new environmental deadline

Table 32.3: Capital investment

Capital investment:	2001-02	2002-03	2003-04	2004-05	2005-06
'Quality'	£358.5m	£409.1m	£413.3m	£482.0m	£456.3m
Infrastructure	£106.4m	£97.4m	£100.0m	£187.6m	£213.7m
Efficiency target	£0.0m	(£70.8m)	(£102.1m)	(£169.1m)	(£207.0m)
Total	£464.9m	£435.7m	£411.1m	£500.5m	£463.0m
Spend to Save	£0.0m	£15.0m	£35.0m	£0.0m	£0.0m
Total capital investment	**£464.9m**	**£450.7m**	**£446.1m**	**£500.5m**	**£463.0m**

Table 32.4: Summary of cash flow movements

Cash outgoings:	2001-02	2002-03	2003-04	2004-05	2005-06
Operating expenditures	£412.4m	£450.5m	£473.4m	£404.1m	£375.4m
Interest charge	£142.7m	£150.6m	£153.8m	£154.9m	£152.9m
Investment	£464.9m	£450.7m	£446.1m	£500.5m	£463.0m
Proceeds from disposals	£0.0m	(£8.4m)	(£8.8m)	(£9.2m)	(£9.7m)
Working capital	£44.4m	(£5.0m)	(£4.9m)	(£3.1m)	£0.9m
Total outgoings	£1,064.4m	£1,038.4m	£1,059.6m	£1,047.2m	£982.5m
Funded by:					
Revenue	£825.9m	£888.2m	£957.2m	£1,000.9m	£988.3m
New debt	£238.4m	£150.2m	£102.4m	£46.4m	(£5.7m)
Total funding	£1,064.4m	£1,038.4m	£1,059.6m	£1,047.2m	£982.5m

Table 32.5: Debt Interest in relation to revenue

	2001-02	2002-03	2003-04	2004-05	2005-06
Interest charge	£142.7m	£150.6m	£153.8m	£154.9m	£152.9m
Revenue	£825.9m	£888.2m	£957.2m	£1,000.9m	£988.3m
Debt interest as a percentage of revenue	17.3%	17.0%	16.1%	15.5%	15.5%

Table 32.6: Resource accounting analysis

	2001-02	2002-03	2003-04	2004-05	2005-06
Operating profit	£153.2m	£185.5m	£207.7m	£249.2m	£257.9m
Total capital investment spend	£464.9m	£450.7m	£446.1m	£500.5m	£463.0m
Total depreciation and IRE charged to the income and expenditure account	£260.4m	£260.5m	£285.0m	£356.8m	£364.7m
Average capital charge movement (from 2003-04)	£0.0m	£0.0m	£0.0m	£11.3m	£21.1m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£311.7m	£265.1m	£238.4m	£262.6m	£226.2m
Baseline budget allowed under resource accounting	£302.3m	£314.3m	£299.7m	£299.7m	£299.7m
Variance to baseline	(£9.4m)	£49.2m	£61.3m	£37.1m	£73.5m

or to respond to an operational problem. This flexibility can also be important in ensuring that there is no question of Scottish Water choosing a PPP project because of constraints on its ability to borrow. The proportion of customers bills, that goes towards paying interest will also begin to fall during this period as can be seen in Table 32.5.

Table 32.6 summarises the resource accounting budget for the proposed Scottish Water.

The baseline budget is the public expenditure available to Scottish Water. I have taken this budget from the Minister's commissioning letter. Scottish Water's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint. My revenue caps are sufficient to ensure that Scottish Water can meet the public expenditure constraints. I have assessed my recommended revenue gaps to try to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

The level of interest is growing less quickly than revenue towards the end of the Review period. This is demonstrated by the ratio '% change in level of interest/ % change in level of revenue' in Table 32.7, where the ratio is greater than (or equal to) one. The free cash flow increases throughout the period and is sufficient in 2005-06 to reduce the actual outstanding debt. The surplus in 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach

Table 32.7: Financial indicators

	2001-02	2002-03	2003-04	2004-05	2005-06
Weighted average cost of debt	6.7%	6.6%	6.4%	6.3%	6.3%
% change in level of interest/ % change in level of revenue	n/a	0.7	0.3	0.2	1.0
Free cash flow	(£95.7m)	£0.3m	£51.4m	£108.6m	£158.7m
Surplus/(deficit) of Spend to Save to operating expenditure efficiency targets	(£15.4m)	(£8.0m)	£23.1m	(£90.9m)	(£135.8m)

Table 32.8: Financial ratios

	2001-02	2002-03	2003-04	2004-05	2005-06
Free cash flow cover of interest	(0.7)	0.0	0.3	0.7	1.0
% total base operating cost to revenue	43.7%	36.5%	31.6%	29.5%	29.2%
Return on current cost assets (after exceptional items)	7.0%	7.3%	7.6%	8.5%	8.4%
Average 25 depreciation life (years)	25	23	21	21	22

I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be at around 1.5, as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. Good progress towards this target is made during this regulatory period. In the future I would plan to keep this ratio at around 1.5, and this should ensure that we can keep customer charge increases to the absolute minimum.

The return on average current cost net assets exceeds the targeted rate of 6% in each year of the Review period and the cumulative rate of return exceeds 6.5% in each year.

The depreciation lives of non-infrastructure assets are set at a prudent level, resulting in an overall useful life of between 21 and 25 years.

Section 7: Chapter 33

Assessment of Revenue Cap: Risk Analysis – Proposed Scottish Water

a) Background

In the letter that commissioned this Review the Minister asked me to carry out a formal risk analysis. My analysis focuses on the likelihood of the proposed Scottish Water failing to comply with the resource accounting budget (the public expenditure constraint) allowed by the Scottish Executive. This risk analysis is important because it provides a higher level of confidence in the projections than a simple sensitivity analysis. This analysis allows me to take account of all of the major risk factors at the same time.

In particular, I examine how under- or out-performance of my efficiency targets for operating and capital expenditure might affect compliance with budgets. I quantify the chances that the proposed Scottish Water will not exceed the public expenditure constraint set in the commissioning letter. I could quantify the risk to customers' bills or delays to the investment programme in the same way, but these are effectively different manifestations of the same risk - the risk that the public expenditure constraint is breached. My analysis, therefore, attempts to determine, as objectively as possible, the degree of this risk.

In carrying out my Review, I have made many assumptions, and these have been discussed in previous chapters. The most material of these, in terms of their impact on the financial results, are the efficiency targets. My assumptions on depreciation, inflation and potential merger savings are also material, but of a lower order, and have therefore not been analysed in as much detail. My assumption on depreciation does potentially impact on the performance of Scottish Water in relation to its resource budget, but it is wholly controllable. It is therefore a risk that the management and board of Scottish Water could control.

My assumption of capital expenditure inflation is lower than the retail price index (RPI). The impact of capital expenditure inflation increasing to RPI is approximately £25 million by the final year of the regulatory period. This is significant, but is not material relative to the other risks. I believe that this inflation rate in Scotland is likely to continue to run below the UK average and that my estimate is therefore likely to be broadly correct. I believe that the conservative assumptions made in assessing the efficiency targets are likely to lead to a far greater variability in outcome. Ten percent of the efficiency targets is nearly double the total inflation rate risk.

I have identified three mutually exclusive scenarios for the proposed Scottish Water's progress towards meeting my efficiency targets for operating and capital expenditure.

The success of Scottish Water will depend upon a considerable cultural change in the organisation. The organisation must understand that it operates in a commercial and competitive world and must identify and influence those factors that will determine its ultimate success. This will include issues of governance and incentives. It will also be essential that the management have key performance indicators that reflect the principal drivers of the business. Scottish Water will also have to be fully accountable to its customers and to set tariffs that are broadly reflective of the costs incurred.

These issues are discussed in more detail in Chapters 11 and 26.

i) Scenario A

In this scenario, I have assumed that the degree of efficiency achieved is unpredictable, and that a wide range of outcomes could occur. This happens because the key success factors noted above are not fully addressed. I believe that it is unlikely under this scenario that the proposed targets would be approached, and there is a slight possibility that the recent decline in performance could continue. Broadly, I would expect the authority to make more progress against the capital efficiency target than the operating efficiency target. I believe that the target for operating cost is more dependent on the successful transformation of the organisation.

ii) Scenario B

I have assumed in this scenario that the proposed Scottish Water has addressed the key management issues outlined above. I have also assumed that this is done quickly and is a direct result of the creation of Scottish Water from the three existing authorities.

Under this scenario, the likely closure of the efficiency gap is much more predictable. I believe that given the conservative assessment of the targets, the management should be able to achieve the targets with a margin to spare and that significant

under- or out-performance of the targets is unlikely. My analysis has shown that the water and sewerage companies in England and Wales have a very consistent record of performance. I cannot see any reason why this should not be repeated in Scotland.

The worst case in this scenario is broadly similar to the level of efficiency of Welsh Water at the 1999 Periodic Review. The best case is broadly equivalent to the achievement of the leading company in England and Wales by 1998-99. I have discussed in more detail the performance of the companies in improving their efficiency in Chapters 18 and 19. The management of Scottish Water has a significant advantage in that it can learn from the experience of the privatised companies.

iii) Scenario C

In this scenario, the proposed Scottish Water has again addressed the key management issues outlined above. I have also assumed that this is done quickly and is a direct result of the creation of Scottish Water from the three existing authorities.

Scenario C differs from Scenario B in that Scottish Water would show a commitment to market testing each major area of cost, either on a local or a more global basis. This does not mean that the organisation inevitably opts to contract out its activities. It simply means that it can be confident on an on-going basis that it is delivering each activity as cost effectively as possible. As an example, Wessex Water has successfully achieved a very high degree of efficiency by encouraging a partnership approach between management and workers. Welsh Water has achieved a similar effect by contracting out its operations. The successful solution for Scottish Water will take into full account the expectations of customers, the workers, managers and the unions.

In my view, this scenario is capable of providing efficiencies that are at the leading edge for the UK. The attractiveness of the Scottish market to potential contractors could well encourage very competitive pricing of any contracts. Even in the worst case, this scenario is very unlikely to fail to deliver the proposed efficiency target, because this would imply that market prices for activities would be well above the norm in England and Wales. There is no empirical evidence to support this.

I regard Scenarios A, B and C as being mutually exclusive, because I believe that the creation of Scottish Water can be a catalyst for change. The extent of that change could be marginal (Scenario A), significant (Scenario B) or leading edge (Scenario C). I do not believe that it is realistic to assume that the organisational change required to deliver the capital efficiency target is achieved, but that it is not achieved for the operating cost target. It also does not seem likely that, beyond the variations of the range of outcomes, these organisational issues can be partially addressed. This means that each scenario produces results that are distinct and different from one another.

In each of these scenarios, I find no compelling reason to suppose that the risk profiles should be skewed either way. I believe, therefore, that a Normal distribution seems most appropriate. I have quantified the risk profiles for each of these scenarios, as shown in Table 33.1:

Table 33.1: Assumed mean and standard deviation of risk profiles for operating and capital efficiencies

	Profile A	Profile B	Profile C
Distribution	**Normal**	**Normal**	**Normal**
Mean closure of efficiency gap (%)	Operating expenditure: 20 Capital expenditure: 40	85 (operating & capital expenditure)	105 (operating & capital expenditure)
Standard deviation	20	7.5	5

These profiles are illustrated in Figures 33.1 and 33.2.

Figure 33.1: Risk profiles for operating expenditure

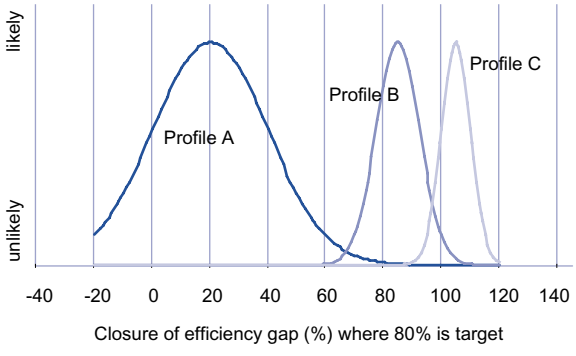
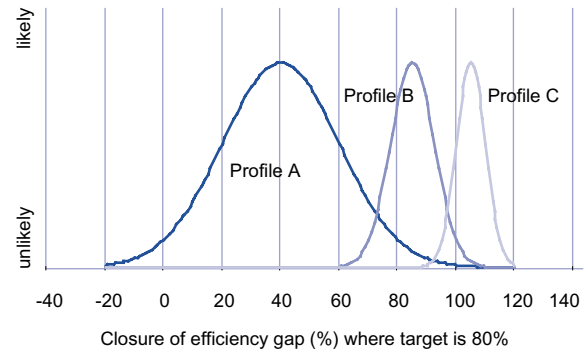


Figure 33.2: Risk profiles for capital expenditure



My assumptions about the scenarios, and their risk profiles, cover a very wide range of possible outcomes. This is clearly demonstrated in the figures. I am therefore confident that I have covered the plausible scope for uncertainty in my Review.

Table 33.2: Profile combinations considered in the risk analysis

Risks considered	Dependency
Operating cost Scenario A only	Assumes no risk in achieving the target for capital expenditure
Operating cost Scenario B only	Assumes no risk in achieving the target for capital expenditure
Operating cost Scenario C only	Assumes no risk in achieving the target for capital expenditure
Capital expenditure Scenario A only	Assumes no risk in achieving the target for operating cost
Capital expenditure Scenario B only	Assumes no risk in achieving the target for operating cost
Capital expenditure Scenario C only	Assumes no risk in achieving the target for operating cost
Operating cost and capital expenditure Scenario A	Dependent
Operating cost and capital expenditure Scenario A	Independent
Operating cost and capital expenditure Scenario B	Dependent
Operating cost and capital expenditure Scenario B	Independent
Operating cost and capital expenditure Scenario C	Dependent
Operating cost and capital expenditure Scenario C	Independent

b) Analysis

I have used the profiles described above in a standard risk analysis software package. I assessed the profile combinations set out in Table 33.2.

I have not combined different scenarios in my analysis. As explained above, I do not believe that combinations of scenario are likely to reflect a possible actual outcome.

The choice of dependent and independent profiles reflects whether the risk of under- or out-performance against targeted operating cost efficiency and capital expenditure efficiency has a common cause (dependent), or alternatively that these two factors are independent. In my view, the degree of dependence is least for Scenario A, and greatest for Scenario C. I have, however, looked at both assumptions.

My risk analysis also examines the potential effect on compliance with public expenditure budgets of delays in addressing the efficiency targets.

c) Results

I have calculated the risk that the proposed Scottish Water exceeds its public expenditure constraint in each year of the review period. I have assessed this risk under each scenario.

The most likely outcome is the 50% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint. A negative number means that the constraint is exceeded.

The best outcome is the lower 5% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint.

The worst outcome is the higher 5% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint.

The results are shown in Table 33.3.

Table 33.3: Summary of risk analysis on public expenditure budget for Scottish Water

RISK PROFILE	5% chance that public expenditure exceeds:	Margin	Most likely outcome	Margin	5% chance that public expenditure is below :	Margin	% chance of exceeding public expenditure constraint
OPERATING COST EFFICIENCY TARGET ONLY							
Profile A							
2002–03	**£385m**	**(£71m)**	**£359m**	**(£45m)**	**£333m**	**(£19m)**	99.8%
2003–04	**£422m**	**(£122m)**	**£382m**	**(£82m)**	**£341m**	**(£42m)**	>99.9%
2004–05	**£521m**	**(£222m)**	**£473m**	**(£174m)**	**£425m**	**(£125m)**	>99.9%
2005–06	**£541m**	**(£242m)**	**£485m**	**(£185m)**	**£429m**	**(£129m)**	>99.9%
Profile B							
2002–03	£267m	£47m	£257m	£57m	£247m	£67m	<0.1%
2003–04	£243m	£57m	£227m	£73m	£211m	£88m	<0.1%
2004–05	£264m	£36m	£245m	£55m	£226m	£73m	<0.1%
2005–06	£226m	£74m	£204m	£96m	£182m	£118m	<0.1%
Profile C							
2002–03	£224m	£90m	£218m	£97m	£211m	£103m	<0.1%
2003–04	£177m	£123m	£167m	£133m	£156m	£143m	<0.1%
2004–05	£163m	£136m	£152m	£148m	£140m	£160m	<0.1%
2005–06	£101m	£199m	£87m	£213m	£73m	£227m	<0.1%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile A							
2002–03	**£388m**	**(£74m)**	**£359m**	**(£45m)**	**£330m**	**(£16m)**	99.5%
2003–04	**£423m**	**(£124m)**	**£382m**	**(£82m)**	**£340m**	**(£40m)**	>99.9%
2004–05	**£542m**	**(£243m)**	**£473m**	**(£173m)**	**£404m**	**(£104m)**	>99.9%
2005–06	**£570m**	**(£270m)**	**£485m**	**(£185m)**	**£400m**	**(£101m)**	>99.9%
Profile B							
2002–03	£268m	£46m	£257m	£57m	£246m	£69m	<0.1%
2003–04	£243m	£56m	£227m	£73m	£211m	£89m	<0.1%
2004–05	£272m	£28m	£245m	£55m	£218m	£82m	<0.1%
2005–06	£237m	£63m	£204m	£96m	£171m	£129m	<0.1%
Profile C							
2002–03	£225m	£90m	£218m	£97m	£210m	£104m	<0.1%
2003–04	£177m	£123m	£167m	£133m	£156m	£144m	<0.1%
2004–05	£168m	£131m	£152m	£148m	£134m	£165m	<0.1%
2005–06	£108m	£192m	£87m	£213m	£66m	£234m	<0.1%
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Dependent							
Profile A							
2002–03	**£416m**	**(£102m)**	**£359m**	**(£45m)**	£302m	£12m	90%
2003–04	**£466m**	**(£166m)**	**£382m**	**(£82m)**	£297m	£2m	95%
2004–05	**£594m**	**(£294m)**	**£473m**	**(£173m)**	**£353m**	**(£53m)**	99%
2005–06	**£630m**	**(£330m)**	**£485m**	**(£185m)**	**£340m**	**(£40m)**	98%
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Independent							
Profile A							
2002–03	**£398m**	**(£84m)**	**£359m**	**(£45m)**	**£320m**	**(£6m)**	97%
2003–04	**£439m**	**(£140m)**	**£382m**	**(£82m)**	**£324m**	**(£24m)**	99%
2004–05	**£556m**	**(£256m)**	**£473m**	**(£173m)**	**£390m**	**(£91m)**	>99.9%
2005–06	**£585m**	**(£285m)**	**£485m**	**(£185m)**	**£385m**	**(£86m)**	99.9%

RISK PROFILE	5% chance that public expenditure exceeds:	Margin	Most likely outcome	Margin	5% chance that public expenditure is below :	Margin	% chance of exceeding public expenditure constraint
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Dependent							
Profile B							
2002–03	£279m	£36m	£257m	£57m	£236m	£79m	<0.1%
2003–04	£259m	£41m	£227m	£73m	£195m	£105m	<0.1%
2004–05	£291m	£9m	£245m	£55m	£199m	£100m	2%
2005–06	£259m	£41m	£204m	£96m	£149m	£151m	0.2%
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Independent							
Profile B							
2002–03	£272m	£42m	£257m	£57m	£242m	£72m	<0.1%
2003–04	£249m	£51m	£227m	£73m	£205m	£95m	<0.1%
2004–05	£277m	£23m	£245m	£55m	£213m	£87m	0.2%
2005–06	£243m	£57m	£204m	£96m	£165m	£134m	<0.1%
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Dependent							
Profile C							
2002–03	£231m	£83m	£218m	£97m	£204m	£110m	<0.1%
2003–04	£186m	£113m	£167m	£133m	£147m	£153m	<0.1%
2004–05	£180m	£120m	£152m	£148m	£123m	£177m	<0.1%
2005–06	£121m	£178m	£87m	£213m	£53m	£247m	<0.1%
OPERATING COST & CAPITAL EXPENDITURE EFFICIENCY TARGET							
Independent							
Profile C							
2002–03	£228m	£87m	£218m	£97m	£208m	£107m	<0.1%
2003–04	£181m	£118m	£167m	£133m	£152m	£148m	<0.1%
2004–05	£173m	£127m	£152m	£148m	£130m	£170m	<0.1%
2005–06	£113m	£187m	£87m	£213m	£61m	£239m	<0.1%

Notes: Public expenditure outcomes that exceed budget are shown in bold type. Risks greater than 1% and less than 99% are rounded to the nearest percent.

The results show clearly the importance of a concerted effort by the management of Scottish Water to develop a more commercial organisation. In Scenario A there is a very high chance that the public expenditure constraint could be breached. This likelihood is greater than 99% in 2004-05 under either the dependent or independent outcomes for capital and operating cost efficiencies. There is a 5% chance that the shortfall could exceed £330 million in 2005-06.

I believe that it is reasonable and prudent to assume Scenario B. In this case, the range of possible outcomes is considerably more encouraging. The risk that the public expenditure constraint is exceeded is estimated at 2% in 2004-05 and is negligible for the other years in this Review period. There is a 5% chance that the difference between the outcome and the constraint is under £9 million in 2004-05, but the difference, at this level of risk, is more than £30 million for each of the other years.

The Scenario C results are excellent. The chances of exceeding the public expenditure constraint in each year are negligible, at less than 0.1% for all cases.

The analysis above has dealt with risks concerning the extent to which the proposed Scottish Water meets efficiency targets. There are also risks in relation to the speed with which targets are addressed. I have examined the potential impact on compliance with public expenditure budgets of a delay in the achievement of my targets. The results show that it is imperative for Scottish Water to give utmost priority to achieving the

efficiency targets. A delay of one year would result in a budget shortfall of almost £90 million in 2002-03. In the event of a two-year delay, the budget shortfall would be over £150 million in 2003-04. Table 33.4 compares the expected margin on the public expenditure budget arising from such delays.

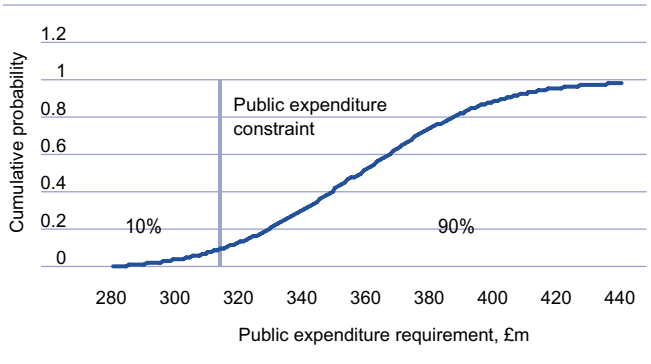
Table 33.4: Effect of delay in efficiency savings on expected margin on public expenditure budget

	2002–03	2003–04	2004–05	2005–06
Targets met on time	£49.2m	£61.3m	£37.1m	£73.5m
Targets delayed by one year	(£87.8m)	(£17.0m)	(£30.3m)	(£6.7m)
Targets delayed by two years	(£103.6m)	(£154.4m	(£126.8m)	(£78.8m)

In Appendix D I provide details of my risk analysis. The examples that follow demonstrate some of the key results of the detailed analysis. Figures 33.3 to 33.8 highlight the following:

- The cumulative risk profile against the public expenditure constraint for a selected year for each scenario. I have combined the operating cost and capital expenditure efficiency target and assumed that they are dependent.
- Also shown is the minimum margin between likely outcome and public expenditure constraint and the associated risk levels for each of the four years of the Review period. I have again combined the operating cost and capital expenditure efficiency target and assumed that they are dependent.

Figure 33.3: Cumulative risk profile for public expenditure. Operating and capital cost efficiencies – dependent. Scotland Profile A 2002-03



In Figure 33.3, Scenario A shows a high risk of exceeding the public expenditure constraint in 2002-03 (90% chance).

Figure 33.4 shows that the likelihood and extent of non-compliance with the public expenditure constraint grows over time. By 2005-06, the chances of a £300 million shortfall are estimated to be almost 10%.

Figure 33.5 shows that the chances of Scenario B exceeding the public expenditure constraint in 2004-05 are very small (2%). Figure 33.6 shows that only in that year is there any material risk of a shortfall.

Figure 33.7 shows that for Scenario C, the risk of exceeding the public expenditure constraint is, like Scenario B, negligible. Moreover, there is no measurable risk of exceeding the resource accounting budget in any of the four years of the Review period. This is shown in Figure 33.8.

Figure 33.4: Minimum projected margin on public expenditure (£m). Operating and capital cost efficiencies – dependent. Scotland Profile A

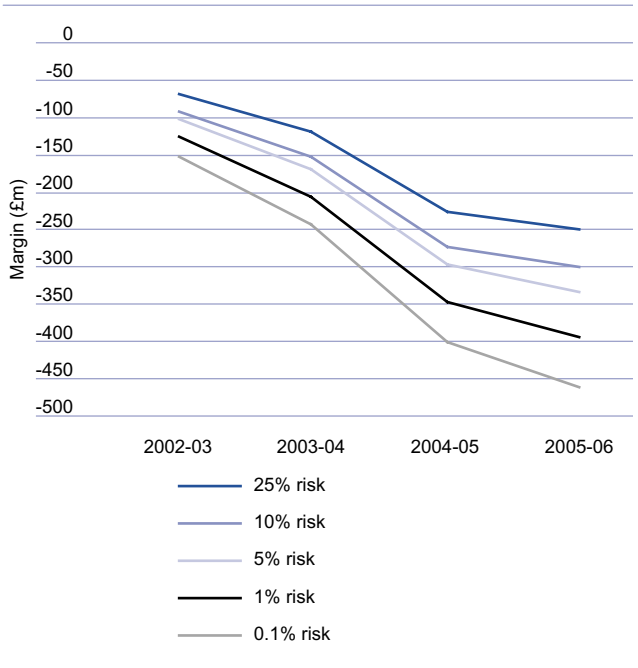


Figure 33.5: Cumulative risk profile for public expenditure. Operating and capital cost efficiencies – dependent. Scotland Profile B 2005-06

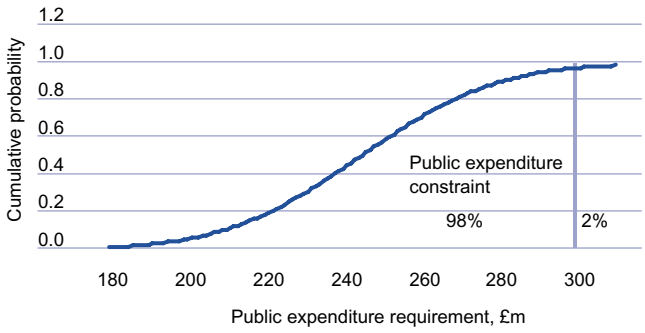


Figure 33.6: Minimum projected margin on public expenditure (£m). Operating and capital cost efficiencies – dependent. Scotland profile B

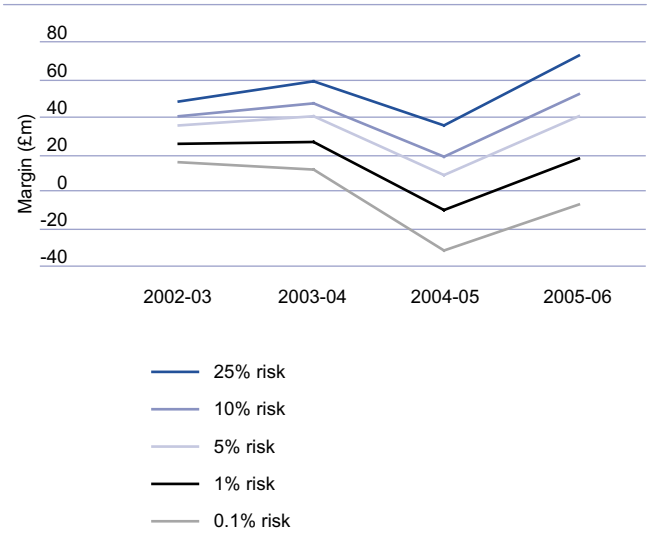


Figure 33.7: Cumulative risk profile for public expenditure. Operating and capital cost efficiencies – dependent. Scotland profile C 2002-03

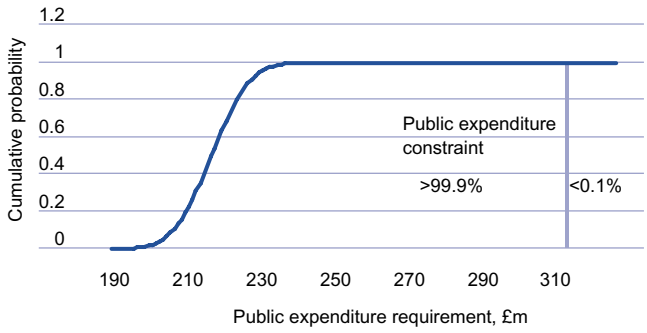
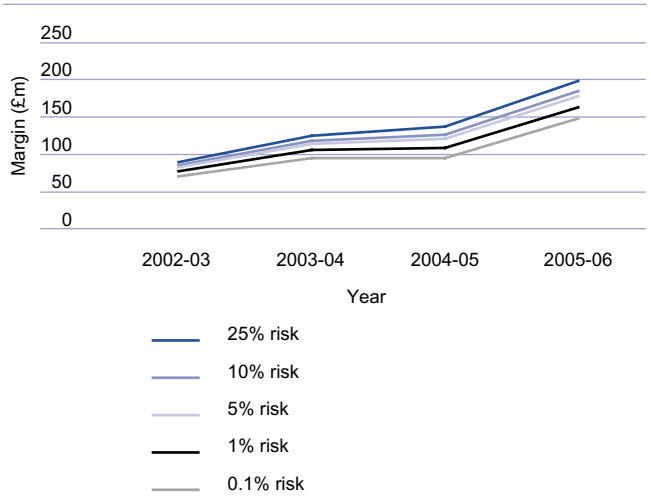


Figure 33.8: Minimum projected margin on public expenditure (£m). Operating and capital cost efficiencies – dependent. Scotland profile C



d) Conclusion

I have conducted a very thorough risk analysis of the results of my financial model and of the most critical assumptions that I have made. I am able to conclude with confidence that the targets that I have set and the recommendations I have made on revenue caps are reasonable and achievable. It is entirely within the control of the management of the proposed Scottish Water to ensure that the public expenditure constraint is not breached. I do not believe that this is at all likely. However, it is imperative that there is no delay in tackling the targets.

Section 7: Chapter 34

Assessment of Revenue Cap: Financial Summary for East of Scotland Water Authority

This chapter describes the principal results of my financial model for East of Scotland Water Authority in each year of the current regulatory period (i.e. 2001-02 to 2005-06). The results of this model would apply in the event that the Scottish Parliament does not endorse the creation of Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. The requirement is within the public expenditure limits set out in the letter from the Minister that commissioned this Review. A summary of the formal risk analysis of my recommendations, which was also requested in the commissioning letter, is provided in Chapter 37.

a) Financial summary for East of Scotland Water Authority (proposed resource budget in line with commissioning letter)

My aim is to keep the revenue that is raised from customers to the lowest possible level whilst allowing a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still less than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of East of Scotland Water Authority's revenues.

My recommended overall revenue cap, in the event that the current balance of public expenditure between the authorities is maintained, is indicated in Table 34.1. Table 34.1 also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 47% of total operating cost. The share of base operating cost increases to 81% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

Table 34.1: Indicative revenue breakdown

Revenue split by customer type:	2001–02	2002–03	2003–04	2004–05	2005–06
Domestic revenue	£151.8m	£171.2m	£186.4m	£198.0m	£204.4m
% change on previous year	18.0%	12.8%	8.9%	6.2%	3.2%
Non-domestic revenue	£58.0m	£65.0m	£70.3m	£74.1m	£76.0m
% change on previous year	(3.0%)	12.0%	8.1%	5.5%	2.5%
Large user revenue	£17.8m	£17.8m	£17.8m	£17.8m	£17.8m
% change on previous year	(21.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£6.4m	£7.4m	£8.5m	£9.8m	£11.3m
% change on previous year	(6.5%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£15.2m	£17.1m	£18.4m	£19.5m	£19.9m
% change on previous year	6.0%	12.0%	8.1%	5.5%	2.5%
Net profit from non-core business activities	£0.0m	£0.2m	£0.4m	£0.4m	£0.4m
Total revenue	**£249.3m**	**£278.6m**	**£301.8m**	**£319.6m**	**£329.7m**
% change on previous year	**n/a**	**11.8%**	**8.3%**	**5.9%**	**3.2%**
Domestic revenue as % total	**60.9%**	**61.5%**	**61.8%**	**62.0%**	**62.0%**
Non-domestic revenue as % of total	**39.1%**	**38.5%**	**38.2%**	**38.0%**	**38.0%**

Table 34.2: Operating costs summary

Base operating costs	2001–02	2002–03	2003–04	2004–05	2005–06
Base	£104.5m	£107.1m	£109.8m	£112.6m	£115.4m
New	£0.0m	£0.8m	£1.7m	£2.6m	£3.6m
Efficiency target	(£3.2m)	(£13.1m)	(£15.2m)	(£16.4m)	(£17.7m)
Total	£101.3m	£94.8m	£96.3m	£98.8m	£101.2m
Spend to Save operating costs	£0.0m	£12.4m	£26.4m	£7.8m	£0.0m
PPP costs	£23.0m	£30.0m	£33.0m	£34.0m	£35.0m
Depreciation charge:					
Non-infrastructure assets charge	£44.0m	£45.7m	£50.6m	£51.1m	£51.7m
Infrastructure charge	£46.2m	£39.2m	£37.3m	£53.3m	£62.3m
Total	£90.2m	£85.0m	£87.9m	£104.4m	£114.0m
Total operating costs	**£214.5m**	**£222.2m**	**£243.6m**	**£244.9m**	**£250.2m**

I expect East of Scotland Water Authority to close 50% of the efficiency gap with comparator companies in England and Wales. This will result in base operating cost falling to 39% of total operating cost. Base operating cost will then account for 72% of the total, excluding depreciation. Table 34.2 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 11% of total operating costs in 2001-02. This increases to 14% by 2005-06. I have not set East of Scotland Water Authority an efficiency target for its PPP contracts; however, the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for East of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts on the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 29. This also increases the total depreciation charge. I believe that the depreciation charge that I have estimated is more in line with the actual expected life of the assets of East of Scotland Water Authority. The costs are summarised in Table 34.2.

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased slightly the capital programme in consultation with the authority's management in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure that relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably. The capital investment values are given in Table 34.3.

Table 34.4 details the cash flow of East of Scotland Water Authority. In 2002-03, customer revenue funds 89% of the total expenditure of the authority. East of Scotland Water Authority increases its outstanding debt by a further £33.9 million to cover the cash outflow in the first year of the Review period.

By 2004-05, revenue from customers is sufficient to fund all the expenditure of East of Scotland Water Authority and to make a small repayment of debt. The authority will, however, still have increased its total debt by £65.1 million over the four years of this regulatory period. This will position East of Scotland Water

Authority well for the future, since it is important to retain financial flexibility and the ability to borrow.

This will certainly improve the outlook for customer prices if there is a need to invest to meet a new environmental deadline or to respond to an operational problem. Flexibility may also be important in ensuring that there is no question of the authority choosing a PPP project because of constraints on its ability to borrow. The proportion of customers' bills that goes towards paying interest will also begin to fall during this period.

The baseline budget is the public expenditure available to East of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter. East of Scotland Water Authority's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

My revenue caps are sufficient to ensure that East of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that

Table 34.3: Capital investment

Capital Investment	2001–02	2002–03	2003–04	2004–05	2005–06
'Quality'	£99.8m	£107.6m	£123.6m	£111.7m	£117.2m
Infrastructure	£31.7m	£30.1m	£28.0m	£48.6m	£60.5m
Efficiency target	£0.0m	(£24.8m)	(£28.9m)	(£32.6m)	(£37.7m)
Total	£131.4m	£112.9m	£122.7m	£127.6m	£140.0m
Spend to Save	£0.0m	£4.7m	£10.9m	£0.0m	£0.0m
Total capital investment	**£131.4m**	**£117.5m**	**£133.6m**	**£127.6m**	**£140.0m**

Table 34.4: Summary of cash flow movements

Cash outgoings	2001–02	2002–03	2003–04	2004–05	2005–06
Operating costs	£124.3m	£137.2m	£155.7m	£140.5m	£136.2m
Interest charge	£49.9m	£51.3m	£52.5m	£51.9m	£51.2m
Investment	£131.4m	£117.5m	£133.6m	£127.6m	£140.0m
Proceeds from disposals	£0.0m	(£1.1m)	(£1.2m)	(£1.2m)	(£1.2m)
Working capital	(£19.3m)	£7.7m	(£1.6m)	(£1.3m)	(£0.7m)
Total outgoings	£286.4m	£312.5m	£339.1m	£317.7m	£325.5m
Funded by:					
Revenue	£249.3m	£278.6m	£301.8m	£319.6m	£329.7m
New debt	£37.1m	£33.9m	£37.3m	(£1.9m)	(£4.2m)
Total funding	**£286.4m**	**£312.5m**	**£339.1m**	**£317.7m**	**£325.5m**

Table 34.5: Debt interest in relation to revenue

	2001–02	2002–03	2003–04	2004–05	2005–06
Interest charge	£49.9m	£51.3m	£52.5m	£51.9m	£51.2m
Revenue	£249.3m	£278.6m	£301.8m	£319.6m	£329.7m
Interest charge as a percentage of revenue	20.0%	18.4%	17.4%	16.3%	15.5%

Table 34.6. Resource accounting analysis

Resource accounting analysis	2001–02	2002–03	2003–04	2004–05	2005–06
Operating profit	£34.8m	£57.6m	£59.3m	£75.8m	£80.8m
Total capital investment spend	£131.4m	£117.5m	£133.6m	£127.6m	£140.0m
Total depreciation and IRE charged to the Income and Expenditure account	£90.2m	£85.0m	£87.9m	£104.4m	£114.0m
Average capital charge movement (from 2003-04)	£0.0m	£0.0m	£0.0m	£2.7m	£4.9m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£96.7m	£60.0m	£74.3m	£54.5m	£64.1m
Baseline budget allowed under resource accounting	£83.8m	£87.1m	£83.1m	£83.1m	£83.1m
Variance to baseline	(£12.9m)	£27.2m	£8.8m	£28.6m	£18.9m

Table 34.7: Financial indicators

	2001–02	2002–03	2003–04	2004–05	2005–06
Weighted average cost of debt	6.9%	6.8%	6.6%	6.6%	6.5%
% Change in level of interest/ % change in level of revenue	n/a	0.1	0.1	(0.1)	(0.1)
Free cash flow	£12.9m	£17.3m	£15.3m	£53.8m	£55.4m
Surplus/(deficit) of Spend to Save to operating costs efficiency targets	(£3.2m)	£3.9m	£22.1m	(£8.6m)	(£17.7m)

there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

Table 34.6 summarises the resource accounting budget for East of Scotland Water Authority.

The level of interest is growing less quickly than revenue each year of the Review period. This is demonstrated by the ratio '% change in level of interest / % change in level of revenue' in Table 34.7 where the ratio is less than one. The free cash flow increases throughout the period and is sufficient in 2004-05 to reduce the actual outstanding debt. The surplus in years 2002-03 and 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be at around 1.5, as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. Good progress towards this target is made during this regulatory period. In the future I would plan to keep this ratio at around 1.5, and this should ensure that we can keep customer charge increases to the absolute minimum.

Table 34.8: Financial ratios

	2001–02	2002–03	2003–04	2004–05	2005–06
Free cash flow cover of interest	0.3	0.3	0.3	1.0	1.1
Total base operating costs to revenue	40.6%	34.1%	32.0%	30.9%	30.7%
Return on current cost assets (after exceptional items)	5.0%	7.5%	7.2%	8.7%	8.9%
Average asset life (years)	24	24	23	24	25

The return on average current cost net assets exceeds the targeted rate of 6% in each year of the Review period and the cumulative rate of return exceeds the targeted 6.5%.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level, resulting in an overall useful life of between 23 and 25 years.

b) Financial summary for East of Scotland Water Authority (proposed revised resource budget)

This section describes the principal results of a second scenario from my financial model for East of Scotland Water Authority. This scenario generates revenue caps for each year of the current regulatory period and would apply in the event that the Scottish Parliament does not endorse Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. This second scenario is different from the first version in that I have changed the balance of public expenditure in order to produce the lowest overall increases for customers across Scotland. The total public expenditure requirement across the three authorities is within the public expenditure limits set in the Minister's commissioning letter.

My aim is to keep the revenue that is raised from customers to the lowest possible level whilst allowing a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still lower than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of East of Scotland Water Authority's revenues.

My recommended overall revenue cap is indicated in Table 34.9. Table 34.9 also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 47% of total operating cost. The share of base operating cost increases to 81% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

I expect East of Scotland Water Authority to close 50% of the efficiency gap with comparator companies in England and Wales. This will result in base operating cost falling to 39% of total operating cost. Base operating cost will then account for 72% of the total, excluding depreciation. Table 34.10 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 11% of total operating costs in 2001-02. This increases to 14% by 2005-06. I have not set East of Scotland Water Authority an efficiency target for its PPP contracts; however, the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for East of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts on the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 29. This also increases the total depreciation charge. I believe that the depreciation charge I have estimated is more in line with the actual expected life of the assets of East of Scotland Water Authority. The costs are summarised in Table 34.10.

Table 34.9: Indicative revenue breakdown

Revenue split by customer type	2001–02	2002–03	2003–04	2004–05	2005–06
Domestic revenue	£151.8m	£171.2m	£190.1m	£214.4m	£220.2m
% change on previous year	18.0%	12.8%	11.0%	12.8%	2.7%
Non-domestic revenue	£58.0m	£65.0m	£71.7m	£80.3m	£81.9m
% change on previous year	(3.0%)	12.0%	10.3%	12.0%	2.0%
Large user revenue	£17.8m	£17.8m	£17.8m	£17.8m	£17.8m
% change on previous year	(21.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£6.4m	£7.4m	£8.5m	£9.8m	£11.3m
% change on previous year	(6.5%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£15.2m	£17.1m	£18.8m	£21.1m	£21.5m
% change on previous year	6.0%	12.0%	10.3%	12.0%	2.0%
Net profit from non-core business activities	£0.0m	£0.2m	£0.4m	£0.4m	£0.4m
Total revenue	**£249.3m**	**£278.6m**	**£307.3m**	**£343.7m**	**£353.0m**
% change on previous year	**n/a**	**11.8%**	**10.3%**	**11.9%**	**2.7%**
Domestic revenue as % of total	**60.9%**	**61.5%**	**61.9%**	**62.4%**	**62.4%**
Non-domestic revenue as % total	**39.1%**	**38.5%**	**38.1%**	**37.6%**	**37.6%**

Table 34.10: Operating costs summary

Base operating costs	2001–02	2002–03	2003–04	2004–05	2005–06
Base	£104.5m	£107.1m	£109.8m	£112.6m	£115.4m
New	£0.0m	£0.8m	£1.7m	£2.6m	£3.6m
Efficiency target	(£3.2m)	(£13.1m)	(£15.2m)	(£16.4m)	(£17.7m)
Total	£101.3m	£94.8m	£96.3m	£98.8m	£101.2m
Spend to Save operating costs	£0.0m	£12.4m	£26.4m	£7.8m	£0.0m
PPP costs	£23.0m	£30.0m	£33.0m	£34.0m	£35.0m
Depreciation charge:					
Non-infrastructure assets charge	£44.0m	£45.7m	£50.6m	£51.1m	£51.7m
Infrastructure charge	£46.2m	£39.2m	£37.3m	£53.3m	£62.3m
Total	£90.2m	£85.0m	£87.9m	£104.4m	£114.0m
Total operating costs	**£214.5m**	**£222.2m**	**£243.6m**	**£244.9m**	**£250.2m**

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure that relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably.

Table 34.12 details the cash flow of East of Scotland Water Authority. In 2002-03, customer revenue funds 89% of the total expenditure of the authority. East of Scotland Water Authority increases its outstanding debt by a further £33.9 million to cover the cash outflow in the first year of the Review period.

By 2004-05, revenue from customers is sufficient to fund all the expenditure of East of Scotland Water Authority and to make a small repayment of debt. The authority will, however, have increased its total debt by £5.9 million over the four years of this regulatory period. This will position East of Scotland Water Authority well for the future, since it is important to retain financial flexibility and the ability to borrow.

This will certainly improve the outlook for customer prices if there is a need to invest to meet a new environmental deadline or to respond to an operational problem. Flexibility may also be important in ensuring that there is no question of the authority choosing a PPP project because of constraints on its ability to

Table 34.11: Capital investment

Capital Investment	2001–02	2002–03	2003–04	2004–05	2005–06
'Quality'	£99.8m	£107.6m	£123.6m	£111.7m	£117.2m
Infrastructure	£31.7m	£30.1m	£28.0m	£48.6m	£60.5m
Efficiency target	£0.0m	(£24.8m)	(£28.9m)	(£32.6m)	(£37.7m)
Total	£131.4m	£112.9m	£122.7m	£127.6m	£140.0m
Spend to Save	£0.0m	£4.7m	£10.9m	£0.0m	£0.0m
Overall total	**£131.4m**	**£117.5m**	**£133.6m**	**£127.6m**	**£140.0m**

Table 34.12: Summary of cash flow movements

Cash outgoings	2001–02	2002–03	2003–04	2004–05	2005–06
Operating costs	£124.3m	£137.2m	£155.7m	£140.5m	£136.2m
Interest charge	£49.9m	£51.3m	£52.2m	£50.3m	£48.3m
Investment	£131.4m	£117.5m	£133.6m	£127.6m	£140.0m
Proceeds from disposals	£0.0m	(£1.1m)	(£1.2m)	(£1.2m)	(£1.2m)
Working capital	(£19.3m)	£7.7m	(£2.0m)	(£2.6m)	(£0.7m)
Total outgoings	£286.4m	£312.5m	£338.4m	£314.7m	£322.8m
Funded by:					
Revenue	£249.3m	£278.6m	£307.3m	£343.7m	£353.0m
New debt	£37.1m	£33.9m	£31.1m	(£28.9m)	(£30.2m)
Total funding	**£286.4m**	**£312.5m**	**£338.4m**	**£314.7m**	**£322.8m**

Table 34.13: Debt interest in relation to revenue

	2001–02	2002–03	2003–04	2004–05	2005–06
Interest charge	£49.9m	£51.3m	£52.2m	£50.3m	£48.3m
Revenue	£249.3m	£278.6m	£307.3m	£343.7m	£353.0m
Interest charge as a percentage of revenue	20.0%	18.4%	17.0%	14.6%	13.7%

Table 34.14: Resource accounting analysis

Resource accounting analysis	2001–02	2002–03	2003–04	2004–05	2005–06
Operating profit	£34.8m	£57.6m	£64.8m	£99.9m	£104.0m
Total capital investment spend	£131.4m	£117.5m	£133.6m	£127.6m	£140.0m
Total depreciation and IRE charged to the Income and Expenditure account	£90.2m	£85.0m	£87.9m	£104.4m	£114.0m
Average capital charge movement (from 2003–04)	£0.0m	£0.0m	£0.0m	£2.6m	£4.8m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£96.7m	£60.0m	£68.8m	£30.3m	£40.8m
Baseline budget allowed under resource accounting	£83.8m	£77.1m	£75.4m	£40.0m	£49.8m
Variance to baseline	(£12.9m)	£17.2m	£6.6m	£9.7m	£9.0m

borrow. The proportion of customers' bills that goes towards paying interest will also begin to fall during this period.

Table 34.14 summarises the resource accounting budget for East of Scotland Water Authority.

The baseline budget is the public expenditure available to East of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter and have reapportioned it between the three authorities in a way which results in an equitable price profile for each authority. East of Scotland Water Authority's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

My revenue caps are sufficient to ensure that East of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

The level of interest is growing less quickly than revenue each year of the Review period. This is demonstrated by the ratio '% change in level of interest / % change in level of revenue' in Table 34.15 where the ratio is less than one. The free cash flow increases throughout the period and is sufficient in 2004-05 to reduce the actual outstanding debt. The surplus in 2002-03 and 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be at around 1.5, as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. I expect this target to be achieved in 2004-05. In the future I would plan to keep this ratio at around 1.5, and this should ensure that we can keep customer charge increases to the absolute minimum.

The return on average current cost net assets exceeds the targeted rate of 6% in each year of the Review period. The cumulative return also exceeds the targeted 6.5% in each year.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level resulting in an overall useful life of between 23 and 25 years.

Table 34.15: Financial Indicators

	2001–02	2002–03	2003–04	2004–05	2005–06
Weighted average cost of debt	6.9%	6.8%	6.7%	6.7%	6.7%
% Change in level of interest/ % change in level of revenue	n/a	0.2	0.2	(0.3)	(1.5)
Free cash flow	£12.9m	£17.3m	£21.1m	£79.3m	£78.6m
Surplus/(deficit) of Spend to Save to operating costs efficiency targets	(£3.2m)	£3.9m	£22.1m	(£8.6m)	(£17.7m)

Table 34.16: Financial ratios

	2001–02	2002–03	2003–04	2004–05	2005–06
Free cash flow cover of interest	0.3	0.3	0.4	1.6	1.6
Total base operating costs to revenue	40.6%	34.1%	31.4%	28.8%	28.7%
Return on current cost assets (after exceptional items)	5.0%	7.5%	7.9%	11.5%	11.5%
Average asset life (years)	24	24	23	24	25

Section 7: Chapter 35

Assessment of Revenue Cap: Financial Summary for North of Scotland Water Authority

This chapter describes the principal results of my financial model for North of Scotland Water Authority in each year of the current regulatory period. The results of this model would apply in the event that the Scottish Parliament does not endorse Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. The requirement is within the public expenditure limits set in the letter from the Minister, which commissioned this Review. A summary of the formal risk analysis to my recommendations, which was also requested in the commissioning letter, is provided in Chapter 37.

a) Financial summary for North of Scotland Water Authority (proposed resource budget in line with commissioning letter)

My aim is obviously to keep the revenue that is raised from customers to the lowest possible level consistent with a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still less than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of North of Scotland Water Authority's revenues.

My recommended overall revenue cap, in the event that the current balance of public expenditure between the authorities is maintained, is indicated in Table 35.1. Table 35.1 also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 49% of total operating cost. The share of base operating cost increases to 79% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

Table 35.1: Indicative revenue breakdown

Revenue split by customer type	2001-02	2002-03	2003-04	2004-05	2005-06
Domestic revenue	£133.3m	£157.1m	£166.1m	£200.3m	£201.7m
% Change on previous year	17.0%	17.8%	5.7%	20.6%	0.7%
Non-domestic revenue	£88.4m	£103.5m	£108.6m	£130.1m	£130.1m
% Change on previous year	10.0%	17.0%	5.0%	19.8%	0.0%
Large user revenue	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m
% Change on previous year	(55.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£1.6m	£1.8m	£2.1m	£2.4m	£2.8m
% Change on previous year	(41.5%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£7.2m	£8.5m	£8.9m	£10.7m	£10.7m
% Change on previous year	4.5%	17.0%	5.0%	19.8%	0.0%
Net profit from non-core business activities	£0.0m	£0.0m	£0.0m	£0.1m	£0.1m
Total revenue	**£232.0m**	**£272.3m**	**£287.2m**	**£345.0m**	**£346.8m**
% Change on previous year	**n/a**	**17.4%**	**5.5%**	**20.1%**	**0.5%**
Domestic revenue as % total	**57.5%**	**57.7%**	**57.8%**	**58.1%**	**58.2%**
Non-domestic revenue as % of total	**42.5%**	**42.3%**	**42.2%**	**41.9%**	**41.8%**

I expect North of Scotland Water Authority to close 50% of the efficiency gap with England and Wales. This will result in base operating cost falling to 32% of total operating cost. Base operating cost will then account for 61% of the total, excluding depreciation. Table 35.2 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 13% of total operating costs in 2001-02. This increases to 20% by 2005-06. I have not set North of Scotland Water Authority an efficiency target for their PPP contracts, however the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for North of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in chapter 30. This also increases the total depreciation charge. I believe that the depreciation charge, which I have estimated is more in line with the actual expected life of the assets of North of Scotland Water Authority. The costs are summarised in Table 35.2.

Table 35.2: Costs summary

Base operating costs	2001-02	2002-03	2003-04	2004-05	2005-06
Base	£94.1m	£96.5m	£98.9m	£101.4m	£103.9m
New	£0.4m	£0.9m	£1.3m	£1.7m	£2.1m
Efficiency target	(£3.6m)	(£14.9m)	(£17.2m)	(£18.6m)	(£20.0m)
Total	£90.9m	£82.5m	£83.0m	£84.5m	£86.0m
Spend to Save operating costs	£0.0m	£9.3m	£19.7m	£5.8m	£0.0m
PPP costs	£23.0m	£47.3m	£48.4m	£49.7m	£50.9m
Depreciation charge:					
Non-infrastructure assets charge	£26.5m	£35.8m	£45.1m	£51.1m	£52.0m
Infrastructure charge	£43.3m	£45.5m	£45.7m	£63.3m	£69.8m
Total	£69.7m	£81.3m	£90.8m	£114.4m	£121.8m
Total operating costs	**£183.7m**	**£220.3m**	**£241.9m**	**£254.4m**	**£258.7m**

Table 35.3: Capital investment

Capital Investment	2001-02	2002-03	2003-04	2004-05	2005-06
'Quality'	£119.8m	£151.0m	£126.4m	£169.4m	£141.0m
Infrastructure	£32.3m	£42.1m	£42.9m	£65.7m	£74.6m
Efficiency target	£0.0m	(£34.8m)	(£32.3m)	(£47.8m)	(£45.7m)
Total	£152.1m	£158.4m	£137.0m	£187.3m	£169.9m
Spend to Save	£0.0m	£3.5m	£8.1m	£0.0m	£0.0m
Overall total	**£152.1m**	**£161.8m**	**£145.1m**	**£187.3m**	**£169.9m**

Table 35.4: Summary of cash flow movements

Cash outgoings	2001-02	2002-03	2003-04	2004-05	2005-06
Operating costs	£113.9m	£139.0m	£151.1m	£140.0m	£136.9m
Interest charge	£32.3m	£35.8m	£37.8m	£38.3m	£38.2m
Investment	£152.1m	£161.8m	£145.1m	£187.3m	£169.9m
Proceeds from disposals	£0.0m	(£1.2m)	(£1.2m)	(£1.2m)	(£1.2m)
Working capital	£2.0m	£9.1m	(£1.1m)	(£4.1m)	(£0.1m)
Total outgoings	£300.3m	£344.6m	£331.7m	£360.3m	£343.6m
Funded by:					
Revenue	£232.0m	£272.3m	£287.2m	£345.0m	£346.8m
New debt	£68.2m	£72.3m	£44.5m	£15.3m	(£3.2m)
Total funding	**£300.3m**	**£344.6m**	**£331.7m**	**£360.3m**	**£343.6m**

Table 35.5: Debt interest in relation to revenue

	2001-02	2002-03	2003-04	2004-05	2005-06
Interest charge	£32.3m	£35.8m	£37.8m	£38.3m	£38.2m
Revenue	£232.0m	£272.3m	£287.2m	£345.0m	£346.8m
Interest charge as a percentage of revenue	13.9%	13.1%	13.2%	11.1%	11.0%

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly in consultation with the authority's management in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure, which relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably.

Table 35.4 details the cashflow of North of Scotland Water Authority. In 2002-03, customer revenue funds 79% of the total expenditure of the authority. North of Scotland Water Authority increases its outstanding debt by a further £72.3 million to cover the cash outflow in the first year of the Review period.

By 2005-06, revenue from customers is sufficient to fund all the expenditure of North of Scotland Water Authority. The authority will, however, still have increased its total debt by £128.8 million over the four years of this regulatory period. This significant debt burden would limit North of Scotland Water Authority's ability to absorb shocks in the future. Charges are already at a high level and further rises resulting from further debt increases would not be welcome.

The proportion of customer bills, which goes to pay interest will also begin to reduce during this period, but this results from the lower cost of new debt rather than any repayments of principal.

Table 35.6 summarises the resource accounting budget for North of Scotland Water Authority.

The baseline budget is the public expenditure available to North of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter. North's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

My revenue caps are sufficient to ensure that North of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting

Table 35.6: Resource accounting analysis

Resource accounting analysis	2001-02	2002-03	2003-04	2004-05	2005-06
Operating profit	£48.4m	£53.2m	£46.6m	£91.8m	£89.3m
Total capital investment spend	£152.1m	£161.8m	£145.1m	£187.3m	£169.9m
Total depreciation and IRE charged to the Income and Expenditure account	£69.7m	£81.3m	£90.8m	£114.4m	£121.8m
Average capital charge movement (from 2003-04)	£0.0m	£0.0m	£0.0m	£4.4m	£8.6m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£103.7m	£108.7m	£98.5m	£99.8m	£89.2m
Baseline budget allowed under resource accounting	£112.1m	£116.6m	£111.1m	£111.1m	£111.1m
Variance to baseline	£8.4m	£7.9m	£12.6m	£11.3m	£22.0m

revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

The level of interest is growing less quickly than revenue towards the end of the review period. This is demonstrated by the ratio '% change in level of interest / % change in level of revenue' in the above table where the ratio is less than one. The free cash flow increases throughout the period and is sufficient in 2005-06 to reduce the actual outstanding debt. The surplus in 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach, which I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be about 1.5 as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. Good progress towards this target is made during this regulatory period. In the future I would plan on keeping this ratio at about 1.5 and this should ensure that we can keep customer charge increases to the absolute minimum.

The return on average current cost net assets exceeds the targeted rate of 6% in each year of the review period and the cumulative rate of return exceeds the targeted 6.5%.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level resulting in an overall useful life of between 19 and 25 years.

b) Financial summary for North of Scotland Water Authority (proposed revised resource budget)

This section describes the principal results of a second scenario from my financial model for North of Scotland Water Authority. This scenario generates revenue caps for each year of the current regulatory period and would apply in the event that the Scottish Parliament does not endorse Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. This second scenario is

Table 35.7: Financial indicators

	2001-02	2002-03	2003-04	2004-05	2005-06
Weighted average cost of debt	6.6%	6.4%	6.2%	6.2%	6.2%
% Change in level of interest/ % change in level of revenue	n/a	0.6	1.0	0.1	(0.9)
Free cash flow	(£35.9m)	(£36.5m)	(£6.7m)	£23.1m	£41.4m
Surplus/ (deficit) of Spend to Save to operating costs efficiency targets	(£3.6m)	(£2.1m)	£10.6m	(£12.8m)	(£20.0m)

Table 35.8: Financial ratios

	2001-02	2002-03	2003-04	2004-05	2005-06
Free cash flow cover of interest	(1.1)	(1.0)	(0.2)	0.6	1.1
Total base operating cost to revenue	39.2%	30.3%	28.9%	24.5%	24.8%
Return on current cost assets (after exceptional items)	8.5%	7.7%	6.0%	10.9%	9.8%
Average asset life (years)	25	22	19	19	20

different from the first version in that I have changed the balance of public expenditure in order to produce the lowest overall increases for customers across Scotland. The total public expenditure requirement across the three authorities is within the public expenditure limits set in the Minister's commissioning letter.

My aim is obviously to keep the revenue that is raised from customers to the lowest possible level consistent with a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still less than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of North of Scotland Water Authority's revenues.

My recommended overall revenue cap is indicated in Table 35.9. This table also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 49% of total operating cost. The share of base operating cost increases to 79% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

I expect North of Scotland Water Authority to close 50% of the efficiency gap with England and Wales. This will result in base operating cost falling to 32% of total operating cost. Base

Table 35.9: Indicative revenue breakdown

Revenue split by customer type	2001-02	2002-03	2003-04	2004-05	2005-06
Domestic revenue	£133.3m	£150.4m	£168.1m	£178.6m	£183.4m
% Change on previous year	17.0%	12.8%	11.8%	6.2%	2.7%
Non-domestic revenue	£88.4m	£99.0m	£109.9m	£116.0m	£118.3m
% Change on previous year	10.0%	12.0%	11.0%	5.5%	2.0%
Large user revenue	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m
% Change on previous year	(55.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£1.6m	£1.8m	£2.1m	£2.4m	£2.8m
% Change on previous year	(41.5%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£7.2m	£8.1m	£9.0m	£9.5m	£9.7m
% Change on previous year	4.5%	12.0%	11.0%	5.5%	2.0%
Net profit from non-core business activities	£0.0m	£0.0m	£0.0m	£0.1m	£0.1m
Total revenue	**£232.0m**	**£260.8m**	**£290.6m**	**£308.0m**	**£315.8m**
% Change on previous year	**n/a**	**12.4%**	**11.4%**	**6.0%**	**2.5%**
Domestic revenue as % total	**57.5%**	**57.7%**	**57.8%**	**58.0%**	**58.1%**
Non-domestic revenue as % of total	**42.5%**	**42.3%**	**42.2%**	**42.0%**	**41.9%**

operating cost will then account for 61% of the total, excluding depreciation. Table 35.10 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 13% of total operating costs in 2001-02. This increases to 20% by 2005-06. I have not set North of Scotland Water Authority an efficiency target for their PPP contracts, however the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for North of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 30. This also increases the total depreciation charge. I believe that the depreciation charge, which I have estimated is more in line with the actual expected life of the assets of North of Scotland Water Authority. The costs are summarised in Table 35.10.

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly in order to produce a

Table 35.10: Costs summary

Base Operating Costs	2001–02	2002–03	2003–04	2004–05	2005–06
Base	£94.1m	£96.5m	£98.9m	£101.4m	£103.9m
New	£0.4m	£0.9m	£1.3m	£1.7m	£2.1m
Efficiency target	(£3.6m)	(£14.9m)	(£17.2m)	(£18.6m)	(£20.0m)
Total	£90.9m	£82.5m	£83.0m	£84.5m	£86.0m
Spend to Save operating costs	£0.0m	£9.3m	£19.7m	£5.8m	£0.0m
PPP costs	£23.0m	£47.3m	£48.4m	£49.7m	£50.9m
Depreciation charge:					
Non-infrastructure assets charge	£26.5m	£35.8m	£45.1m	£51.1m	£52.0m
Infrastructure charge	£43.3m	£45.5m	£45.7m	£63.3m	£69.8m
Total	£69.7m	£81.3m	£90.8m	£114.4m	£121.8m
Total operating costs	**£183.7m**	**£220.3m**	**£241.9m**	**£254.4m**	**£258.7m**

Table 35.11: Capital investment

Capital investment	2001-02	2002-03	2003-04	2004-05	2005-06
'Quality'	£119.8m	£151.0m	£126.4m	£169.4m	£141.0m
Infrastructure	£32.3m	£42.1m	£42.9m	£65.7m	£74.6m
Efficiency target	£0.0m	(£34.8m)	(£32.3m)	(£47.8m)	(£45.7m)
Total	£152.1m	£158.4m	£137.0m	£187.3m	£169.9m
Spend to Save	£0.0m	£3.5m	£8.1m	£0.0m	£0.0m
Overall total	**£152.1m**	**£161.8m**	**£145.1m**	**£187.3m**	**£169.9m**

better price profile for customers. I have not re-phased any element of the capital expenditure, which relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably.

Table 35.12 details the cash flow of North of Scotland Water Authority. In 2002-03, customer revenue funds 75% of the total expenditure of the authority. North of Scotland Water Authority increases its outstanding debt by a further £85.4 million to cover the cash outflow in the first year of the Review period.

North of Scotland Water Authority will have increased its total debt by £214.9 million over the four years of this regulatory period. It has not been practical in this Review period to bring North of Scotland Water Authority into a financially sustainable position, without the need for further large increases in customer bills. However, the position of the authority significantly improves over the period with a decline in the rate of growth of debt. The proportion of customer bills, which goes to pay interest will be broadly stable during this period.

Table 35.12: Summary of cash flow movements

Cash outgoings	2001-02	2002-03	2003-04	2004-05	2005-06
Operating costs	£113.9m	£139.0m	£151.1m	£140.0m	£136.9m
Interest charge	£32.3m	£36.4m	£38.2m	£40.8m	£42.3m
Investment	£152.1m	£161.8m	£145.1m	£187.3m	£169.9m
Proceeds from disposals	£0.0m	(£1.2m)	(£1.2m)	(£1.2m)	(£1.2m)
Working capital	£1.9m	£10.1m	(£2.1m)	(£1.2m)	(£0.5m)
Total outgoings	£300.1m	£346.2m	£331.1m	£365.6m	£347.3m
Funded by:					
Revenue	£232.0m	£260.8m	£290.6m	£308.0m	£315.8m
New debt	£68.1m	£85.4m	£40.5m	£57.6m	£31.5m
Total funding	**£300.1m**	**£346.2m**	**£331.1m**	**£365.6m**	**£347.3m**

Table 35.13: Debt interest in relation to revenue

	2001-02	2002-03	2003-04	2004-05	2005-06
Interest charge	£32.3m	£36.4m	£38.2m	£40.8m	£42.3m
Revenue	£232.0m	£260.8m	£290.6m	£308.0m	£315.8m
Interest charge as a percentage of revenue	13.9%	14.0%	13.1%	13.2%	13.4%

Table 35.14 summarises the resource accounting budget for North of Scotland Water Authority.

The baseline budget is the public expenditure available to North of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter and have reapportioned it between the three authorities in a way, which results in an equitable price profile for each authority. North's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

My revenue caps are sufficient to ensure that North of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

Table 35.14: Resource accounting analysis

Resource accounting analysis	2001-02	2002-03	2003-04	2004-05	2005-06
Operating profit	£48.4m	£41.7m	£49.9m	£54.8m	£58.3m
Total capital investment spend	£152.1m	£161.8m	£145.1m	£187.3m	£169.9m
Total depreciation and IRE charged to the Income and Expenditure account	£69.7m	£81.3m	£90.8m	£114.4m	£121.8m
Average capital charge movement (from 2003-04)	£0.0m	£0.0m	£0.0m	£4.4m	£8.8m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£103.7m	£120.2m	£95.1m	£136.9m	£120.3m
Baseline budget allowed under resource accounting	£112.1m	£136.6m	£118.8m	£145.2m	£133.0m
Variance to baseline	£8.4m	£16.4m	£23.7m	£8.4m	£12.7m

Table 35.15: Financial indicators

	2001-02	2002-03	2003-04	2004-05	2005-06
Weighted average cost of debt	6.6%	6.3%	6.2%	6.1%	6.0%
% Change in level of interest/ % change in the level of revenue	n/a	1.0	0.4	1.1	1.5
Free cash flow	(£35.8m)	(£48.9m)	(£2.3m)	(£16.8m)	£10.8m
Surplus/(deficit) of Spend to Save to operating costs efficiency targets	(£3.6m)	(£2.1m)	£10.6m	(£12.8m)	(£20.0m)

Table 35.16: Financial ratios

	2001-02	2002-03	2003-04	2004-05	2005-06
Free cash flow cover of interest	(1.1)	(1.3)	(0.1)	(0.4)	0.3
Total base operating costs to revenue	39.2%	31.6%	28.6%	27.4%	27.2%
Return on current cost assets (after exceptional items)	8.5%	6.0%	6.5%	6.5%	6.4%
Average asset life (years)	25	22	19	19	20

The level of interest is growing more quickly than revenue in two of the four years of the review period. This is demonstrated by the ratio '% change in level of interest / % change in level of revenue' in Table 35.15 where the ratio is greater than one. The free cash flow throughout the period and is not sufficient to reduce the actual outstanding debt. The surplus in year 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach, which I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be about 1.5 as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. I expect some progress towards this target will be made during this regulatory period. The constraints on customer prices mean that achievement of a 1.5 ratio is unlikely in the near future for North of Scotland Water Authority.

The return on average current cost net assets exceeds the targeted rate of 6% in each year of the Review period. The cumulative return also exceeds the targeted 6.5% in each year.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level resulting in an overall useful life of between 19 and 25 years.

Section 7: Chapter 36

Assessment of Revenue Cap: Financial Summary for West of Scotland Water Authority

This chapter describes the principal results of my financial model for West of Scotland Water Authority in each year of the current regulatory period. The results of this model would apply in the event that the Scottish Parliament does not endorse Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. The requirement is within the public expenditure limits set in the letter from the Minister that commissioned this Review. A summary of the formal risk analysis to my recommendations, which was also requested in the commissioning letter, is provided in Chapter 37.

a) Financial summary for West of Scotland Water Authority (proposed resource budget in line with commissioning letter)

My aim is obviously to keep the revenue that is raised from customers to the lowest possible level consistent with a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still less than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of West of Scotland Water Authority's revenues.

My recommended overall revenue cap, in the event that the current balance of public expenditure between the authorities is maintained, is indicated in Table 36.1. Table 36.1 also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 60% of total operating cost. The share of base operating cost increases to 94% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

I expect West of Scotland Water Authority to close 50% of the efficiency gap with England and Wales. This will result in base operating cost falling to 41% of total operating cost. Base operating cost will then account for 79% of the total, excluding depreciation. Table 36.2 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 4% of total operating costs in 2001-02. This increases to 10% by 2005-06. I have not set West of Scotland Water Authority an efficiency target for their PPP contracts,

Table 36.1: Indicative revenue breakdown

Revenue split by customer type	2001–02	2002–03	2003–04	2004–05	2005–06
Domestic revenue	£209.9m	£233.6m	£263.4m	£309.8m	£318.3m
% Change on previous year	19.0%	11.3%	12.8%	17.6%	2.7%
Non-domestic revenue	£101.8m	£112.4m	£125.9m	£147.1m	£150.0m
% Change on previous year	12.0%	10.5%	12.0%	16.8%	2.0%
Large user revenue	£22.7m	£22.7m	£22.7m	£22.7m	£22.7m
% Change on previous year	(21.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£8.7m	£10.0m	£11.5m	£13.2m	£15.2m
% Change on previous year	(9.2%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£9.1m	£10.0m	£11.3m	£13.1m	£13.4m
% Change on previous year	4.3%	10.5%	12.0%	16.8%	2.0%
Net profit from non core business activities	£0.1m	£0.4m	£0.6m	£0.9m	£1.2m
Total revenue	**£352.2m**	**£389.1m**	**£435.4m**	**£506.9m**	**£520.8m**
% Change on previous year	**n/a**	**10.5%**	**11.9%**	**16.4%**	**2.7%**
Domestic revenue as % of total	**59.6%**	**60.0%**	**60.5%**	**61.1%**	**61.1%**
Non-domestic revenue as % of total	**40.4%**	**40.0%**	**39.5%**	**38.9%**	**38.9%**

however the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for West of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 31. This also increases the total depreciation charge. I believe that the depreciation charge, which I have estimated is more in line with the actual expected life of the assets of West of Scotland Water Authority. The costs are summarised in Table 36.2.

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly, in consultation with the authority's management, in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure, which relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably.

Table 36.4 details the cash flow of West of Scotland Water Authority. In 2002-03, customer revenue funds 86% of the total expenditure of the authority. West of Scotland Water Authority increases its outstanding debt by a further £61.5 million to cover the cash outflow in the first year of the Review period.

Table 36.2: Costs summary

Base operating costs	2001–02	2002–03	2003–04	2004–05	2005–06
Base	£176.8m	£181.2m	£185.8m	£190.4m	£195.2m
New	£0.0m	£0.8m	£1.6m	£2.4m	£3.3m
Efficiency target	(£8.5m)	(£35.0m)	(£40.4m)	(£43.7m)	(£47.1m)
Total	£168.3m	£147.0m	£147.0m	£149.2m	£151.4m
Spend to Save operating costs	£0.0m	£18.3m	£38.9m	£11.4m	£0.0m
PPP costs	£11.0m	£34.3m	£35.3m	£35.1m	£36.8m
Depreciation charge:					
Non-infrastructure assets charge	£41.8m	£53.7m	£69.7m	£78.2m	£82.8m
Infrastructure charge	£60.3m	£42.8m	£45.4m	£82.4m	£87.9m
Total	£102.1m	£96.5m	£115.1m	£160.5m	£170.7m
Total operating costs	**£281.4m**	**£296.1m**	**£336.3m**	**£356.2m**	**£358.9m**

Table 36.3: Capital investment

Capital investment	2001–02	2002–03	2003–04	2004–05	2005–06
'Quality'	£138.9m	£169.8m	£186.0m	£218.8m	£218.9m
Infrastructure	£42.5m	£30.6m	£34.2m	£81.2m	£89.1m
Efficiency target	£0.0m	(£36.1m)	(£42.0m)	(£61.1m)	(£65.3m)
Total	£181.4m	£164.3m	£178.2m	£238.9m	£242.7m
Spend to Save	£0.0m	£6.9m	£16.0m	£0.0m	£0.0m
Overall total	**£181.4m**	**£171.2m**	**£194.2m**	**£238.9m**	**£242.7m**

Table 36.4: Summary of cash flow movements

Cash outgoings	2001–02	2002–03	2003–04	2004–05	2005–06
Operating costs	£179.3m	£199.6m	£221.2m	£195.7m	£188.2m
Interest charge	£58.1m	£62.0m	£62.8m	£61.6m	£58.8m
Investment	£181.4m	£171.2m	£194.2m	£238.9m	£242.7m
Proceeds from disposals	£0.0m	(£1.5m)	(£1.6m)	(£1.6m)	(£1.7m)
Working capital	£17.6m	£19.3m	(£3.3m)	(£5.1m)	(£1.0m)
Total outgoings	**£436.4m**	**£450.5m**	**£473.4m**	**£489.5m**	**£487.0m**
Funded by:					
Revenue	£352.2m	£389.1m	£435.4m	£506.9m	£520.8m
New debt	£84.2m	£61.5m	£38.0m	(£17.3m)	(£33.8m)
Total funding	**£436.4m**	**£450.5m**	**£473.4m**	**£489.5m**	**£487.00m**

Table 36.5: Debt interest in relation to revenue

	2001–02	2002–03	2003–04	2004–05	2005–06
Interest charge	£58.1m	£62.0m	£62.8m	£61.6m	£58.8m
Revenue	£352.2m	£389.1m	£435.4m	£506.9m	£520.8m
Interest charge as a percentage of revenue	16.5%	15.9%	14.4%	12.1%	11.3%

Table 36.6: Resource accounting analysis

Resource accounting analysis	2001–02	2002–03	2003–04	2004–05	2005–06
Operating profit	£70.9m	£94.5m	£100.7m	£152.2m	£163.5m
Total capital investment spend	£181.4m	£171.2m	£194.2m	£238.9m	£242.7m
Total depreciation and IRE charged to the Income and Expenditure account	£102.1m	£96.5m	£115.1m	£160.5m	£170.7m
Average capital charge movement (from 03/04)	£0.0m	£0.0m	£0.0m	£5.5m	£10.9m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£110.6m	£76.7m	£93.5m	£92.2m	£90.1m
Baseline budget allowed under resource accounting	£106.4m	£110.6m	£105.5m	£105.5m	£105.5m
Variance to baseline	(£4.2m)	£33.9m	£12.0m	£13.3m	£15.4m

By 2004-05, revenue from customers is sufficient to fund all the expenditure of West of Scotland Water Authority and to make a small repayment of debt. The authority will, however, still have increased its total debt by £48.3 million over the four years of this regulatory period. This will position West of Scotland Water Authority well for the future, since it is important to retain financial flexibility and the ability to borrow.

This flexibility and ability to borrow will certainly improve the outlook for customer prices if there is a need to invest to meet a new environmental deadline or to respond to an operational problem. This flexibility may also be important in ensuring that there can be no question that the authority chooses a PPP project because of constraints on its ability to borrow. The proportion of customer bills, which goes to pay interest will also begin to reduce during this period.

Table 36.6 summarises the resource accounting budget for West of Scotland Water Authority.

Table 36.7: Financial indicators

	2001–02	2002–03	2003–04	2004–05	2005–06
Weighted average cost of debt	6.6%	6.6%	6.4%	6.4%	6.3%
% Change in level of interest/ % change in level of revenue	n/a	0.6	0.1	(0.1)	(1.7)
Free cash flow	(£26.1m)	£0.5m	£24.9m	£78.9m	£92.5m
Surplus/(deficit) of Spend to Save to operating costs efficiency targets	(£8.5m)	(£9.8m)	£14.6m	(£32.2m)	(£47.1m)

Table 36.8: Financial ratios

	2001–02	2002–03	2003–04	2004–05	2005–06
Free cash flow cover of interest	(0.4)	0.0	0.4	1.3	1.6
Total base operating costs to revenue	47.8%	37.8%	33.8%	29.5%	29.1%
Return on current cost assets (after exceptional items)	7.8%	9.1%	8.8%	12.3%	12.3%
Average asset life (years)	25	22	19	19	19

The baseline budget is the public expenditure available to West of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter. West's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

My revenue caps are sufficient to ensure that West of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

The level of interest is growing less quickly than revenue each year of the review period. This is demonstrated by the ratio '% change in level of interest/ % change in level of revenue' in Table 36.7 where the ratio is less than one. The free cash flow increases throughout the period and is sufficient in 2004-05 to reduce the actual outstanding debt. The surplus in year 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach, which I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be about 1.5 as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. This target is achieved by 2005-06. In the future I would plan on keeping this ratio at about 1.5 and this should ensure that we can keep customer charge increases to the absolute minimum.

The return on average current cost net assets exceeds the targeted rate of 6.0% in each year of the review period and the cumulative rate of return exceeds the targeted 6.5%.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level resulting in an overall useful life of between 19 and 25 years.

b) Financial summary for West of Scotland Water Authority (proposed revised resource budget)

This section describes the principal results of a second scenario from my financial model for West of Scotland Water Authority. This scenario generates revenue caps for each year of the current regulatory period and would apply in the event

Table 36.9: Indicative revenue breakdown

Revenue split by customer type	2001–02	2002–03	2003–04	2004–05	2005–06
Domestic revenue	£209.9m	£233.6m	£263.4m	£303.7m	£310.5m
% Change on previous year	19.0%	11.3%	12.8%	15.3%	2.2%
Non-domestic revenue	£101.8m	£112.4m	£125.9m	£144.2m	£146.4m
% Change on previous year	12.0%	10.5%	12.0%	14.5%	1.5%
Large user revenue	£22.7m	£22.7m	£22.7m	£22.7m	£22.7m
% Change on previous year	(21.0%)	0.0%	0.0%	0.0%	0.0%
Trade effluent revenue	£8.7m	£10.0m	£11.5m	£13.2m	£15.2m
% Change on previous year	(9.2%)	15.0%	15.0%	15.0%	15.0%
Secondary and other revenue	£9.1m	£10.0m	£11.3m	£12.9m	£13.1m
% Change on previous year	4.3%	10.5%	12.0%	14.5%	1.5%
Net profit from non-core business activities	£0.1m	£0.4m	£0.6m	£0.9m	£1.2m
Total revenue	**£352.2m**	**£389.1m**	**£435.4m**	**£497.6m**	**£509.0m**
% Change on previous year	**n/a**	**10.5%**	**11.9%**	**14.3%**	**2.3%**
Domestic revenue as % of total	**59.6%**	**60.0%**	**60.5%**	**61.0%**	**61.0%**
Non-domestic revenue as % total	**40.4%**	**40.0%**	**39.5%**	**39.0%**	**39.0%**

that the Scottish Parliament does not endorse Scottish Water. I also outline the extent of the authority's need for public expenditure during the next four years. This second scenario is different from the first version in that I have changed the balance of public expenditure in order to produce the lowest overall increases for customers across Scotland. The total public expenditure requirement across the three authorities is within the public expenditure limits set in the Minister's commissioning letter.

My aim is obviously to keep the revenue that is raised from customers to the lowest possible level consistent with a financially and environmentally sustainable industry in Scotland. The proportion of domestic revenue within the total increases, but is still less than in England and Wales. The increased share of domestic revenue does, however, improve the predictability of West of Scotland Water Authority's revenues.

My recommended overall revenue cap is indicated in Table 36.9. Table 36.9 also outlines my estimate of revenue from each customer segment.

In the current financial year, base operating cost represents 60% of total operating cost. The share of base operating cost increases to 94% of the total if I exclude depreciation. PPP costs and Spend to Save costs account for the balance of total operating cost, excluding depreciation. I have set my efficiency targets in this Review in relation to this base operating cost. These targets were outlined in Chapter 18.

I expect West of Scotland Water Authority to close 50% of the efficiency gap with England and Wales. This will result in base operating cost falling to 41% of total operating cost. Base operating cost will then account for 79% of the total, excluding depreciation. Table 36.10 shows how the proportion of total revenue represented by base operating cost declines.

PPP costs become significant during this period. PPP costs represent 4% of total operating costs in 2001-02. This increases to 10% by 2005-06. I have not set West of Scotland Water Authority an efficiency target for their PPP contracts, however the growing importance of the cost of PPP will require management to review the schemes regularly. Management must ensure that they are getting the best deal for customers.

Resource budgeting has resulted in an increase to the depreciation and infrastructure renewals charge for West of Scotland Water Authority. I have revalued the 1996-97 asset base to current prices in line with the requirements of the resource accounting methodology. This impacts the required depreciation charge. I have also chosen to use more prudent depreciation and infrastructure renewal policies in my financial model. I discussed the rationale for this in Chapter 31. This also increases the total depreciation charge. I believe that the depreciation charge, which I have estimated is more in line with

Table 36.10: Costs summary

Base operating costs	2001–02	2002–03	2003–04	2004–05	2005–06
Base	£176.8m	£181.2m	£185.8m	£190.4m	£195.2m
New	£0.0m	£0.8m	£1.6m	£2.4m	£3.3m
Efficiency target	(£8.5m)	(£35.0m)	(£40.4m)	(£43.7m)	(£47.1m)
Total	£168.3m	£147.0m	£147.0m	£149.2m	£151.4m
Spend to Save operating costs	£0.0m	£18.3m	£38.9m	£11.4m	£0.0m
PPP costs	£11.0m	£34.3m	£35.3m	£35.1m	£36.8m
Depreciation charge:					
Non-infrastructure assets charge	£41.8m	£53.7m	£69.7m	£78.2m	£82.8m
Infrastructure charge	£60.3m	£42.8m	£45.4m	£82.4m	£87.9m
Total	£102.1m	£96.5m	£115.1m	£160.5m	£170.7m
Total operating costs	**£281.4m**	**£296.1m**	**£336.3m**	**£356.2m**	**£358.9m**

the actual expected life of the assets of West of Scotland Water Authority. The costs are summarised in Table 36.10.

I have taken full account of the investment outputs required by the Quality and Standards programme. I have, however, re-phased the capital programme slightly in order to produce a better price profile for customers. I have not re-phased any element of the capital expenditure, which relates to environmental or public health compliance. My capital efficiency targets reduce the actual burden on customers considerably.

Table 36:12 details the cashflow of West of Scotland Water Authority. In 2002-03, customer revenue funds 86% of the total expenditure of the authority. West of Scotland Water Authority increases its outstanding debt by a further £61.5 million to cover the cash outflow in the first year of the Review period.

By 2004-05, revenue from customers is sufficient to fund all the expenditure of West of Scotland Water Authority and to make a small repayment of debt. The authority will, however, have increased its total debt by £71.8 million over the four years of this regulatory period. This will position West of Scotland Water Authority well for the future, since it is important to retain financial flexibility and the ability to borrow.

This flexibility and ability to borrow will certainly improve the outlook for customer prices if there is a need to invest to meet a new environmental deadline or to respond to an operational problem. This flexibility may also be important in ensuring that there can be no question that the authority chooses a PPP project because of constraints on its ability to borrow. The proportion of customer bills, which goes to pay interest will also begin to reduce during this period.

Table 36:14 below summarises the resource accounting budget for West of Scotland Water Authority.

The baseline budget is the public expenditure available to West of Scotland Water Authority. I have taken this budget from the Minister's commissioning letter and have reapportioned it between the three authorities in a way which results in an equitable price profile for each authority. West's need for public expenditure is a function of its operating profit, any movement in the capital charge and its actual capital expenditure. I calculate the actual need for public expenditure by subtracting the annual total capital expenditure from the operating profit for each year. This public expenditure must be less than (or equal to) the baseline budget contained in the commissioning letter. This is a binding constraint.

Table 36.11: Capital investment

Capital investment	2001–02	2002–03	2003–04	2004–05	2005–06
'Quality'	£138.9m	£169.8m	£186.0m	£218.8m	£218.9m
Infrastructure	£42.5m	£30.6m	£34.2m	£81.2m	£89.1m
Efficiency target	£0.0m	(£36.1m)	(£42.0m)	(£61.1m)	(£65.3m)
Total	£181.4m	£164.3m	£178.2m	£238.9m	£242.7m
Spend to Save	£0.0m	£6.9m	£16.0m	£0.0m	£0.0m
Overall total	**£181.4m**	**£171.2m**	**£194.2m**	**£238.9m**	**£242.7m**

Table 36.12: Summary of cash flow movements

Cash outgoings	2001–02	2002–03	2003–04	2004–05	2005–06
Operating costs	£179.3m	£199.6m	£221.2m	£195.7m	£188.2m
Interest charge	£58.1m	£62.0m	£62.8m	£62.1m	£59.9m
Investment	£181.4m	£171.2m	£194.2m	£238.9m	£242.7m
Proceeds from disposals	£0.0m	(£1.5m)	(£1.6m)	(£1.6m)	(£1.7m)
Working capital	£17.6m	£19.3m	(£3.3m)	(£4.4m)	(£0.8m)
Total outgoings	**£436.4m**	**£450.5m**	**£473.4m**	**£490.7m**	**£488.3m**
Funded by:					
Revenue	£352.2m	£389.1m	£435.4m	£497.6m	£509.0m
New debt	£84.2m	£61.5m	£38.0m	(£6.9m)	(£20.7m)
Total funding	**£436.4m**	**£450.5m**	**£473.4m**	**£490.7m**	**£488.3m**

Table 36.13: Debt interest in relation to revenue

	2001–02	2002–03	2003–04	2004–05	2005–06
Interest charge	£58.1m	£62.0m	£62.8m	£62.1m	£59.9m
Revenue	£352.2m	£389.1m	£435.4m	£497.6 m	£509.0m
Interest charge as a percentage of revenue	16.5%	15.9%	14.4%	12.5%	11.8%

Table 36.14: Resource accounting analysis

Resource accounting analysis	2001–02	2002–03	2003–04	2004–05	2005–06
Operating profit	£70.9m	£94.5m	£100.7m	£143.0m	£151.7m
Total capital investment spend	£181.4m	£171.2m	£194.2m	£238.9m	£242.7m
Total depreciation and IRE charged to the Income and Expenditure account	£102.1m	£96.5m	£115.1m	£160.5m	£170.7m
Average capital charge movement (from 2003–04)	£0.0m	£0.0m	£0.0m	£5.5m	£11.0m
Government expenditure	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m
Resource accounting forecast total	£110.6m	£76.7m	£93.5m	£101.5m	£101.9m
Baseline budget allowed under resource accounting	£106.4m	£100.6m	£105.5m	£114.5m	£116.9m
Variance to baseline	(£4.2m)	£23.9m	£12.0m	£13.0m	£15.0m

Table 36.15: Financial indicators

	2001–02	2002–03	2003–04	2004–05	2005–06
Weighted average cost of debt	6.6%	6.6%	6.4%	6.4%	6.3%
% Change in level of interest/ % change in level of revenue	n/a	0.4	0.1	(0.1)	(0.3)
Free cash flow	(£26.1m)	£0.5m	£24.9m	£69.0m	£80.6m
Surplus/(deficit) of Spend to Save to operating costs efficiency targets	(£8.5m)	(£9.8m)	£14.6m	(£32.2m)	(£47.1m)

Table 36.16: Financial ratios

	2001–02	2002–03	2003–04	2004–05	2005–06
Free cash flow cover of interest	(0.4)	0.0	0.4	1.1	1.3
Total Base operating costs to revenue	47.8%	37.8%	33.8%	30.0%	29.8%
Return on current cost assets (after exceptional items)	7.8%	9.1%	8.8%	11.6%	11.4%
Average asset life (years)	25	22	19	19	19

My revenue caps are sufficient to ensure that West of Scotland Water Authority can meet the public expenditure constraints. I have assessed my recommended revenue gaps to ensure that there is a margin between the allowable public expenditure and actual need. This reflects both a need for prudence in setting revenue caps when large efficiencies are required and the need to safeguard future capacity to borrow in order to protect customers from any major shocks.

The level of debt is growing less quickly than revenue in each year of the review period. This is demonstrated by the ratio '% change in level of interest / % change in level of revenue' in Table 36.15 where the ratio is less than one. The free cash flow increases throughout the period and is sufficient in 2004-05 to reduce the actual outstanding debt. The surplus in 2003-04 of the Spend to Save allowance over the operating cost efficiency target indicates the prudent approach, which I have taken towards phasing the targets and the costs of achieving the efficiency target. The weighted average cost of debt is decreasing. This results from the lower cost of new debt.

I believe that a sustainable industry is ensured by closely monitoring the ratio of the free cash flow to the interest charge. This should ideally be about 1.5 as at this level a business with a highly predictable cash flow (such as a utility) should be able to withstand any operational or legislative shocks. I expect good progress towards this target will be made within this regulatory period. In the future I would plan on keeping this ratio at about 1.5 and this should ensure that we can keep customer charge increases to the absolute minimum.

The return on average current cost net assets exceeds the targeted rate of 6.0% in each year of the Review period. The cumulative return also exceeds the targeted 6.5% in each year.

The depreciation lives of non-infrastructure assets are set at a reasonably prudent level resulting in an overall useful life of between 19 and 25 years.

Section 7: Chapter 37

Assessment of Revenue Cap: Risk Analysis (For the Existing Three Authorities)

a) Background

The Minister's commissioning letter for this Review asked me to carry out a formal risk analysis. The analysis set out in this chapter presupposes that the merger into Scottish Water does not proceed.

My analysis focuses on the likelihood of the three authorities failing to comply with the Resource Accounting Budget allowed by the Scottish Executive, and with my recommended reallocation of this budget between the three authorities. This risk analysis is important because it provides a higher level of confidence in the projections than a simple sensitivity analysis. This analysis allows me to take account of all the major risk factors at the same time.

In particular, I examine how under- or over-performance of my efficiency targets for operating and capital expenditure might affect compliance with budgets. I quantify the chances that the authorities will not exceed the public expenditure constraint set in the commissioning letter, and my recommended reallocation. I could quantify the risk to customers' bills or delays to the investment programme in the same way, but these are effectively different manifestations of the same risk – the risk that the public expenditure constraint is breached. My analysis, therefore, attempts to determine, as objectively as possible, the degree of this risk.

In carrying out my Review, I have made many assumptions, which are discussed in previous chapters. The most material of these, in their impact on the financial results, are the efficiency targets. My assumptions on depreciation, inflation and potential merger savings are also material, but of a lower order, and I have therefore not analysed these in as much detail. My assumption on depreciation does potentially impact the performance of the authorities in relation to their resource budgets, but it is wholly controllable. It is therefore a risk that the management and boards of the authorities can control.

My assumption of capital expenditure inflation is lower than the retail price index. The impact of capital expenditure inflation increasing to RPI is approximately £5-10 million for each authority by the final year of the regulatory period. This is significant, but it is not material relative to other risks. I believe that this inflation rate in Scotland is likely to continue to run below the UK average and therefore that my estimate is likely to be broadly correct. I believe that the conservative assumptions made in assessing the efficiency targets are likely to lead to a far greater variability in outcome. 10% of the efficiency targets is nearly double the total inflation rate risk.

My risk analysis for the three authorities is based on a single scenario for progress towards meeting my efficiency targets. I believe this scenario covers the potential range of outcomes that I regard as plausible. To distinguish it from the Scottish Water scenarios A, B and C, I shall refer to it as Scenario D.

i) Scenario D

This scenario covers a wide range of outcomes, driven mainly by the degree of commitment within the authorities to achieving efficiencies. Unlike Scottish Water, where there are three distinct scenarios, I consider that in the three authority model, the degree of commitment can best be represented by a smooth spectrum of risk. I have adopted identical profiles for operating cost and capital expenditure, as shown below: I find no compelling reason to suppose that the risk profiles should be skewed in any way. I believe, therefore, that a Normal distribution seems most appropriate. I have quantified the risk profiles for Scenario D, as shown in Table 37.1.

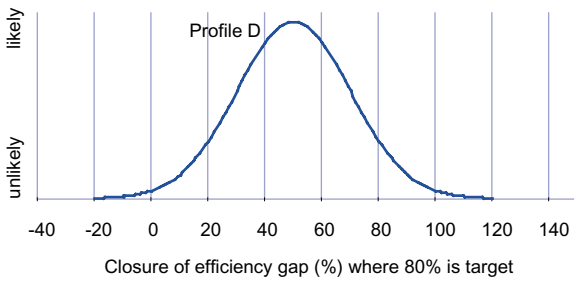
Table 37.1: Assumed mean and standard deviation of risk profiles for operating and capital efficiencies – three authority case

	Profile D
Distribution	Normal
Mean closure of efficiency gap (%)	Operating expenditure: 50 Capital expenditure: 50
Standard deviation	20

The profile is illustrated in Figure 37.1.

My assumed risk profile covers a very wide range of possible outcomes. This is clearly demonstrated in the graph. I am therefore confident that I have covered the plausible scope for uncertainty in my Review.

Figure 37.1: Assumed risk profile for operating and capital expenditure



b) Analysis

I have used the above profiles in a standard risk analysis software package. I assessed the combinations shown in Table 37.2.

The choice of dependent and independent profiles reflects whether the risk of under- or over-performance in operating cost efficiency and capital cost efficiency has a common cause (dependent), or alternatively is independent. In my view, there is a low degree of dependence. I have, however, looked at both assumptions.

c) Results

I have calculated the risk that each authority exceeds its public expenditure constraint in each year of the review period.

The most likely outcome is the 50% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint. A negative number means that the constraint is exceeded.

The best outcome is the lower 5% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint.

The worst outcome is the higher 5% probability point. I show the corresponding level of public expenditure and compare it to the public expenditure constraint.

I present detailed results in Appendix D. The main findings are summarised in the sections that follow, for each authority. I examine the risks assuming both the Scottish Executive public expenditure allowance (which I call RAB A) and my recommended alternative allowance (RAB B) for the three authorities.

I have calculated outcomes for public expenditure for each authority, and their risk profiles, for each year 2002-03 to 2005-06 in the tables which follow.

I have also drawn out the key points of the risk analysis within the figures which follow (for full details see Appendix D), they show:

- The cumulative risk profile against the public expenditure constraint for a selected year. I have combined operating cost and capital expenditure efficiency targets, and assumed they are dependent.
- The minimum margin between the likely outcome and the public expenditure constraint, and the associated risk levels, for each of the four years of the review period. I have

Table 37.2: Combinations of risks considered in the analysis

Risks considered	Dependency
Operating cost scenario D only	Assumes no risk in achieving the target for capital expenditure
Capital expenditure scenario D only	Assumes no risk in achieving the target for operating expenditure
Operating cost and capital expenditure scenario D	Dependent
Operating cost and capital expenditure scenario D	Independent

again combined the operating cost and capital expenditure efficiency target and assumed that they are dependent.

i) East of Scotland Water Authority

Table 37.3 and 37.4 which follow detail the risk analysis under RAB A and RAB B public expenditure allowances respectively.

Table 37.3: Summary of risk analysis on public expenditure constraint for East of Scotland Water Authority, assuming Scottish Executive public expenditure allowance (RAB A)

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB A	Most likely outcome	Margin RAB A	5% chance that public expenditure is below:	Margin RAB A	% chance of exceeding RAB A limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£69m	£18m	£60m	£27m	£51m	£36m	<0.1%
2003–04	**£85m**	**(£2m)**	£74m	£9m	£64m	£19m	8%
2004–05	£66m	£17m	£54m	£29m	£43m	£40m	<0.1%
2005–06	£76m	£7m	£64m	£19m	£52m	£31m	0.5%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£76m	£11m	£60m	£27m	£44m	£43m	0.3%
2003–04	**£94m**	**(£11m)**	£74m	£9m	£55m	£28m	23%
2004–05	£76m	£7m	£54m	£29m	£33m	£50m	2%
2005–06	**£89m**	**(£6m)**	£64m	£19m	£39m	£44m	11%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	£85m	£2m	£60m	£27m	£35m	£52m	4%
2003–04	**£103m**	**(£20m)**	£74m	£9m	£45m	£38m	31%
2004–05	**£87m**	**(£4m)**	£54m	£29m	£22m	£61m	7%
2005–06	**£102m**	**(£19m)**	£64m	£19m	£26m	£57m	20%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	£79m	£8m	£60m	£27m	£41m	£46m	0.8%
2003–04	**£96m**	**(£13m)**	£74m	£9m	£53m	£30m	25%
2004–05	£79m	£4m	£54m	£29m	£30m	£53m	3%
2005–06	**£92m**	**(£9m)**	£64m	£19m	£36m	£47m	13%

Notes: Public expenditure outcomes that exceed budget shown in bold type.
Risks greater than one percent are rounded to the nearest percent.

Table 37.4: Summary of risk analysis on public expenditure constraints for East of Scotland Water Authority, assuming recommended public expenditure allowance (RAB B)

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB B	Most likely outcome	Margin RAB B	5% chance that public expenditure is below:	Margin RAB B	% chance of exceeding RAB B limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£69m	£8m	£60m	£17m	£51m	£26m	<0.1%
2003–04	**£79m**	**(£3m)**	£69m	£7m	£59m	£16m	14%
2004–05	**£41m**	**(£1m)**	£30m	£10m	£20m	£20m	7%
2005–06	**£52m**	**(£3m)**	£41m	£9m	£29m	£21m	10%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£76m	£1m	£60m	£17m	£44m	£33m	4%
2003–04	**£88m**	**(£12m)**	£69m	£7m	£50m	£25m	28%
2004–05	**£52m**	**(£12m)**	£30m	£10m	£9m	£31m	23%
2005–06	**£66m**	**(£16m)**	£41m	£9m	£16m	£34m	27%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	**£84m**	**(£7m)**	£60m	£17m	£36m	£41m	12%
2003–04	**£97m**	**(£22m)**	£69m	£7m	£41m	£35m	35%
2004–05	**£62m**	**(£22m)**	£30m	£10m	(£1m)	£41m	31%
2005–06	**£77m**	**(£27m)**	£41m	£9m	£5m	£45m	34%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	**£78m**	**(£1m)**	£60m	£17m	£42m	£35m	6%
2003–04	**£90m**	**(£15m)**	£69m	£7m	£48m	£28m	31%
2004–05	**£54m**	**(£14m)**	£30m	£10m	£7m	£33m	25%
2005–06	**£68m**	**(£18m)**	£41m	£9m	£14m	£36m	29%

Notes: Public expenditure outcomes that exceed budget are shown in bold type.
Risks greater than one percent are rounded to the nearest percent.

The results in Table 37.3 (RAB A) show that the chances of the Scottish Executive public expenditure constraint being exceeded are significant for Scenario D (operating cost efficiencies and capital cost efficiencies combined, dependently), being an estimated 31% in 2003-04.

The results in Table 37.4 (RAB B) show that the chances of my recommended public expenditure constraint being exceeded are significant for Scenario D (operating and capital cost efficiencies combined), being an estimated 35% in 2003-04, assuming that these efficiencies are dependent. There is a 5% chance that the shortfall could exceed £27m in 2005-06, on the same assumption.

Figure 37.2 and 37.3 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB A public expenditure allowance.

Figure 37.2: Cumulative risk profile for public expenditure (RAB A), operating & capital cost efficiencies dependent – East, Profile D – 2003-04

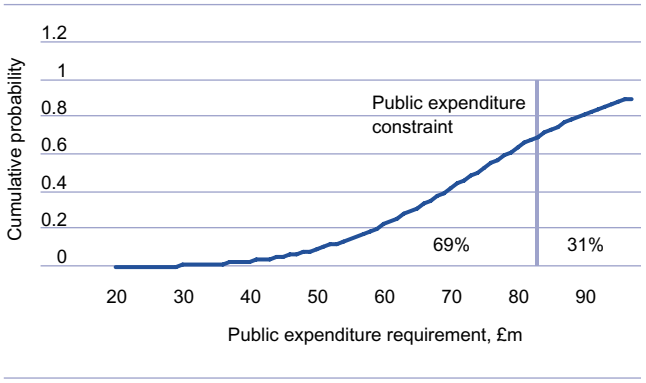


Figure 37.3: Minimum projected margin on public expenditure (RAB A), operating & capital cost efficiencies dependent – East, Profile D

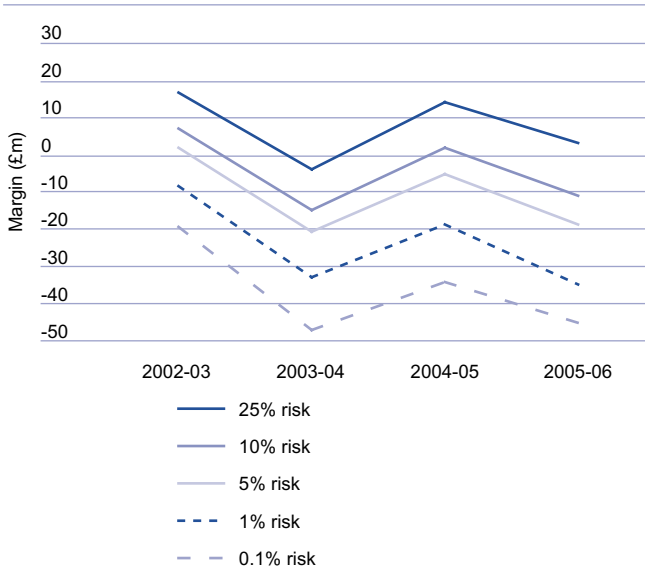


Figure 37.4 and 37.5 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB B public expenditure allowance.

Figure 37.4: Cumulative risk profile for public expenditure (RAB B), operating & capital cost efficiencies – dependent - East, Profile D 2003-04

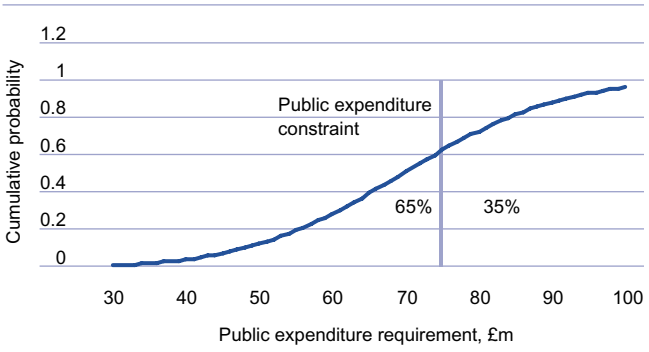
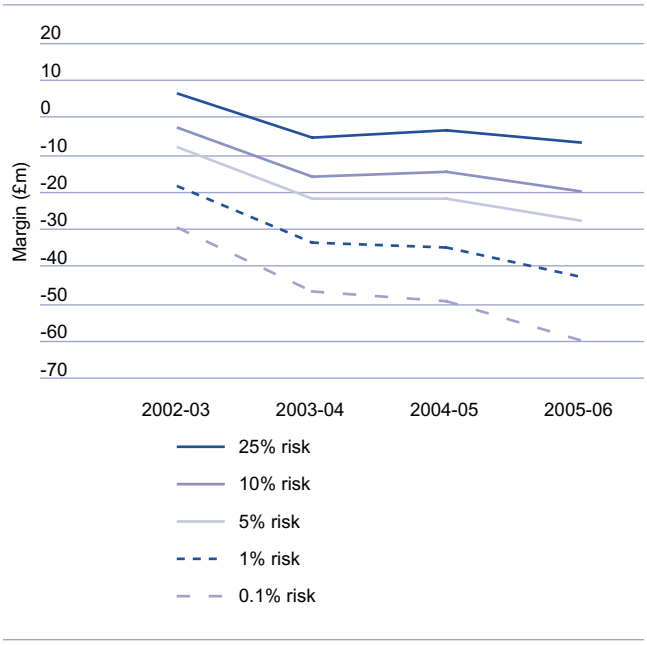


Figure 37.5: Minimum projected margin on public expenditure (RAB B), operating & capital cost efficiencies – dependent - East Profile D



ii) North of Scotland Water Authority

Table 37.5 and 37.6 which follow detail the risk analysis under RAB A and RAB B under public expenditure allowances respectively.

Table 37.5: Summary of risk analysis on public expenditure constraints for North of Scotland Water Authority, assuming Scottish Executive public expenditure allowance (RAB A)

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB A	Most likely outcome	Margin RAB A	5% chance that public expenditure is below:	Margin RAB A	% chance of exceeding RAB A limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	**£119m**	**(£2m)**	£109m	£8m	£99m	£18m	9%
2003–04	£110m	£1m	£98m	£13m	£87m	£24m	3%
2004–05	**£112m**	**(£1m)**	£100m	£11m	£87m	£24m	6%
2005–06	£102m	£9m	£89m	£22m	£76m	£35m	0.3%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	**£132m**	**(£15m)**	£109m	£8m	£86m	£31m	29%
2003–04	**£120m**	**(£9m)**	£98m	£13m	£77m	£34m	17%
2004–05	**£132m**	**(£20m)**	£100m	£11m	£68m	£43m	28%
2005–06	**£120m**	**(£9m)**	£89m	£22m	£59m	£53m	12%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	**£143m**	**(£26m)**	£109m	£8m	£75m	£42m	35%
2003–04	**£132m**	**(£21m)**	£98m	£13m	£64m	£47m	27%
2004–05	**£145m**	**(£34m)**	£100m	£11m	£54m	£57m	34%
2005–06	**£135m**	**(£23m)**	£89m	£22m	£44m	£67m	21%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	**£134m**	**(£17m)**	£109m	£8m	£84m	£33m	30%
2003–04	**£123m**	**(£12m)**	£98m	£13m	£74m	£37m	20%
2004–05	**£134m**	**(£23m)**	£100m	£11m	£66m	£45m	29%
2005–06	**£122m**	**(£11m)**	£89m	£22m	£56m	£55m	14%

Notes: Public expenditure outcomes that exceed budget are shown in bold type.

Risks greater than one percent are rounded to the nearest percent.

Table 37.6: Summary of risk analysis on recommended public expenditure constraint for North of Scotland Water Authority (RAB B)

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB B	Most likely outcome	Margin RAB B	5% chance that public expenditure is below:	Margin RAB B	% chance of exceeding RAB B limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£130m	£7m	£120m	£16m	£110m	£26m	0.3%
2003–04	£106m	£12m	£95m	£24m	£84m	£35m	<0.1%
2004–05	**£149m**	**(£4m)**	£137m	£8m	£124m	£21m	13%
2005–06	**£134m**	**(£1m)**	£120m	£13m	£107m	£26m	6%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	**£143m**	**(£6m)**	£120m	£16m	£97m	£39m	12%
2003–04	£116m	£2m	£95m	£24m	£74m	£45m	3%
2004–05	**£168m**	**(£23m)**	£137m	£8m	£105m	£40m	33%
2005–06	**£151m**	**(£18m)**	£120m	£13m	£90m	£43m	25%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	**£153m**	**(£16m)**	£120m	£16m	£87m	£49m	20%
2003–04	**£128m**	**(£9m)**	£95m	£24m	£62m	£56m	12%
2004–05	**£181m**	**(£36m)**	£137m	£8m	£93m	£52m	38%
2005–06	**£164m**	**(£31m)**	£120m	£13m	£77m	£56m	32%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	**£145m**	**(£8m)**	£120m	£16m	£95m	£41m	14%
2003–04	**£119m**	**(£1m)**	£95m	£24m	£71m	£48m	5%
2004–05	**£171m**	**(£25m)**	£137m	£8m	£103m	£42m	34%
2005–06	**£153m**	**(£20m)**	£120m	£13m	£87m	£46m	26%

Notes: Public expenditure outcomes that exceed budget are shown in bold type.
Risks greater than one percent are rounded to the nearest percent.

The results in Table 37.5 show that the chances of the Scottish Executive public expenditure constraint being exceeded are significant for Scenario D (operating and capital efficiencies combined, dependently), being an estimated 35% in 2002-03.

The results in Table 37.6 show that the chances of my recommended public expenditure constraint being exceeded are significant for Scenario D (operating and capital efficiencies combined, dependently), being an estimated 38% in 2004-05. There is a 5% chance that the shortfall could exceed £36m in 2004-05, again assuming these efficiencies are dependent.

Figures 37.6 and 37.7 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB A public expenditure allowance.

Figure 37.6: Cumulative risk profile for public expenditure (RAB A), operating & capital cost efficiencies – dependent – North, Profile D – 2002-03

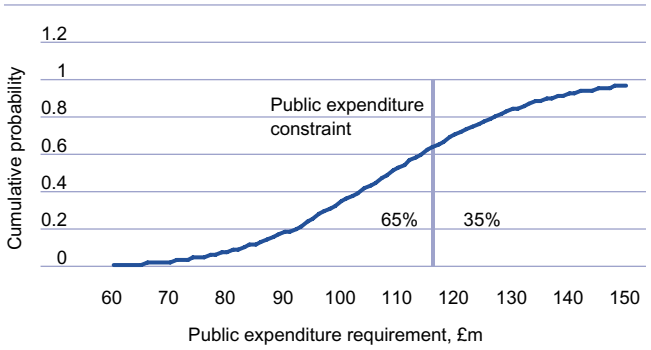
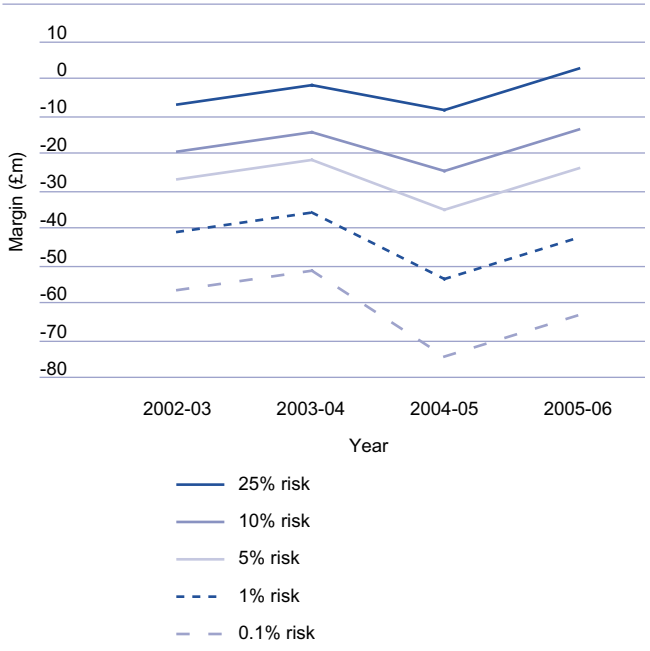


Figure 37.7: Minimum projected margin on public expenditure (RAB A), operating & capital cost efficiencies - dependent – North, Profile D



Figures 37.8 and 37.9 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB B public expenditure allowance.

Figure 37.8: Cumulative risk profile for public expenditure (RAB B), operating & capital cost efficiencies – dependent – North, Profile D – 2004-05

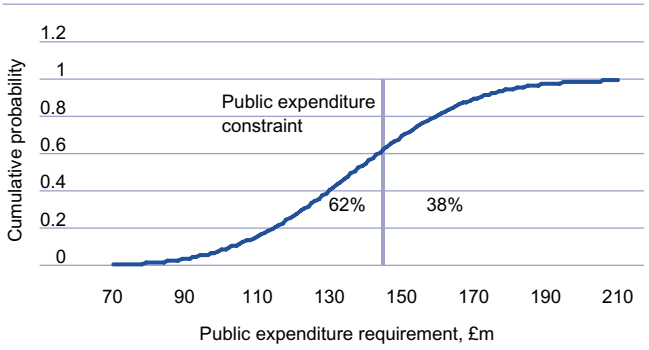
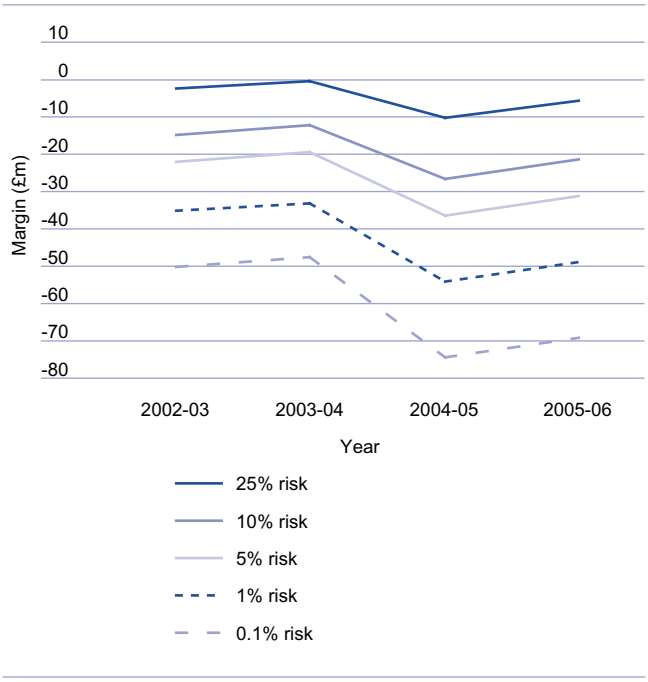


Figure 37.9: Minimum projected margin on public expenditure (RAB B), operating & capital cost efficiencies - dependent – North, Profile D



iii) West of Scotland Water Authority

Table 37.7 and 37.8 which follow detail the risk analysis under RAB A and RAB B public expenditure allowances respectively.

Table 37.7 Summary of risk analysis on public expenditure constraint for West of Scotland Water Authority, assuming Scottish Executive public expenditure allowance (RAB A).

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB A	Most likely outcome	Margin RAB A	5% chance that public expenditure is below:	Margin RAB A	% chance of exceeding RAB A limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£99m	£11m	£77m	£34m	£54m	£57m	0.7%
2003–04	**£120m**	**(£14m)**	£94m	£12m	£68m	£38m	22%
2004–05	**£120m**	**(£15m)**	£92m	£13m	£64m	£41m	22%
2005–06	**£121m**	**(£15m)**	£90m	£15m	£60m	£46m	20%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£99m	£11m	£77m	£34m	£54m	£57m	0.8%
2003–04	**£121m**	**(£15m)**	£94m	£12m	£66m	£39m	23%
2004–05	**£132m**	**(£26m)**	£92m	£13m	£53m	£53m	29%
2005–06	**£133m**	**(£27m)**	£90m	£15m	£48m	£58m	28%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	**£123m**	**(£12m)**	£77m	£34m	£31m	£80m	11%
2003–04	**£147m**	**(£41m)**	£94m	£12m	£40m	£65m	36%
2004–05	**£160m**	**(£55m)**	£92m	£13m	£24m	£81m	37%
2005–06	**£163m**	**(£58m)**	£90m	£15m	£17m	£89m	36%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	£110m	£1m	£77m	£34m	£44m	£67m	5%
2003–04	**£132m**	**(£26m)**	£94m	£12m	£55m	£50m	30%
2004–05	**£141m**	**(£36m)**	£92m	£13m	£43m	£62m	33%
2005–06	**£143m**	**(£38m)**	£90m	£15m	£37m	£68m	32%

Notes: Public expenditure outcomes that exceed budget are shown in bold type.
Risks greater than one percent are rounded to the nearest percent.

Table 37.8: Summary of risk analysis on public expenditure constraint for West of Scotland Water Authority, assuming recommended public expenditure allowance (RAB B).

RISK PROFILE	5% chance that public expenditure exceeds:	Margin RAB B	Most likely outcome	Margin RAB B	5% chance that public expenditure is below:	Margin RAB B	% chance of exceeding RAB B limit
OPERATING COST EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£99m	£1m	£77m	£24m	£54m	£47m	4%
2003–04	**£120m**	**(£14m)**	£94m	£12m	£68m	£38m	22%
2004–05	**£130m**	**(£15m)**	£102m	£13m	£73m	£41m	22%
2005–06	**£133m**	**(£16m)**	£102m	£15m	£71m	£46m	21%
CAPITAL EXPENDITURE EFFICIENCY TARGET ONLY							
Profile D							
2002–03	£99m	£1m	£77m	£24m	£54m	£47m	5%
2003–04	**£121m**	**(£15m)**	£94m	£12m	£66m	£39m	23%
2004–05	**£141m**	**(£26m)**	£102m	£13m	£62m	£52m	29%
2005–06	**£144m**	**(£27m)**	£102m	£15m	£60m	£57m	28%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Dependent							
Profile D							
2002–03	**£123m**	**(£22m)**	£77m	£24m	£31m	£70m	20%
2003–04	**£147m**	**(£41m)**	£94m	£12m	£40m	£65m	36%
2004–05	**£169m**	**(£55m)**	£102m	£13m	£34m	£81m	38%
2005–06	**£175m**	**(£58m)**	£102m	£15m	£29m	£88m	37%
OPERATING COST AND CAPITAL EXPENDITURE EFFICIENCY TARGETS Independent							
Profile D							
2002–03	**£110m**	**(£9m)**	£77m	£24m	£44m	£57m	12%
2003–04	**£132m**	**(£26m)**	£94m	£12m	£55m	£50m	30%
2004–05	**£151m**	**(£36m)**	£102m	£13m	£52m	£62m	33%
2005–06	**£155m**	**(£38m)**	£102m	£15m	£49m	£68m	32%

Notes: Public expenditure outcomes that exceed budget are shown in bold type.
Risks greater than one percent are rounded to the nearest percent.

The results in Table 37.7 (RAB A) show that the chances of the public expenditure constraint being exceeded are significant for Scenario D (operating and capital efficiencies combined, dependently), being an estimated 37% in 2004-05. There is a 5% chance that the shortfall could exceed £58m in 2005-06, again assuming dependencies in these efficiencies.

The results in Table 37.8 (RAB B) show that the chances of my recommended public expenditure constraint being exceeded are significant for Scenario D (operating and capital efficiencies combined, dependently), being an estimated 38% in 2004-05. There is a 5% chance that the shortfall could exceed £58m in 2005-06, again assuming dependencies in these efficiencies.

Figure 37.10 and 37.11 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB A public expenditure allowance.

Figure 37.10: Cumulative risk profile for public expenditure (RAB A), operating & capital cost efficiencies – dependent – West, Profile D 2004-05

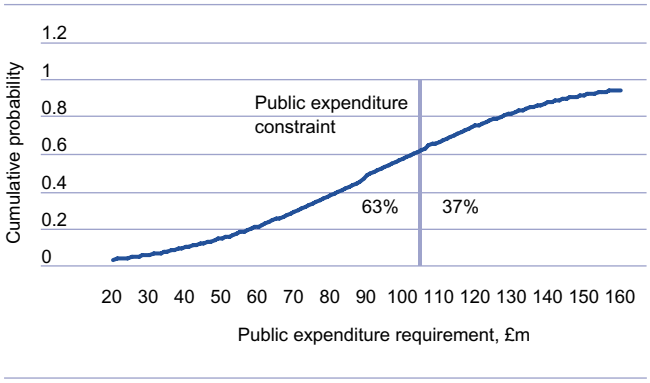


Figure 37.11 Minimum projected margin on public expenditure (RAB A), operating & capital cost efficiencies - dependent – West, Profile D

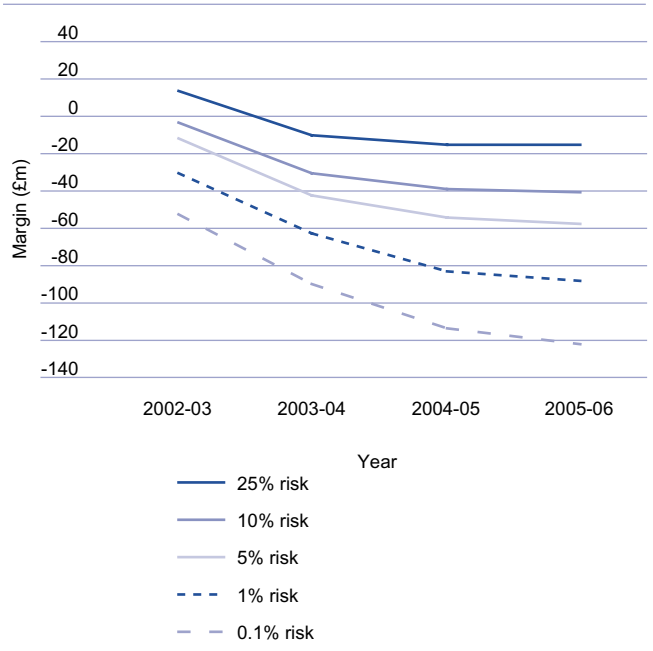


Figure 37.12 and 37.13 show the cumulative risk profile for public expenditure and the minimum projected margin on public expenditure respectively under RAB B public expenditure allowance.

Figure 37.12: Cumulative risk profile for public expenditure (RAB B), operating & capital cost efficiencies – dependent – West, Profile D 2004-05

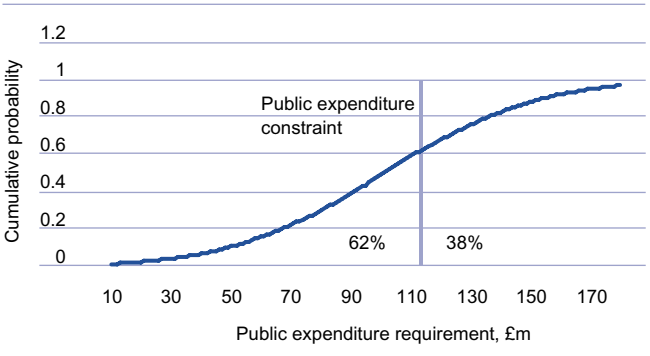
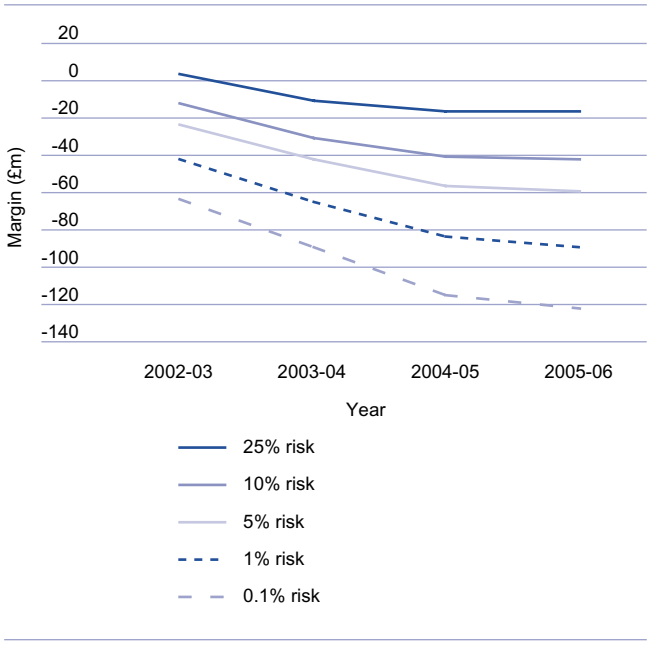


Figure 37.13: Minimum projected margin on public expenditure (RAB B) Operating & capital cost efficiencies - dependent West, Profile D



d) Conclusion

I have conducted a very thorough risk analysis of the results of my financial model and the most critical assumptions that I have made. My risk analysis shows that there exists a real possibility that public expenditure constraints could be breached if the merger of the three authorities does not proceed. The key success criterion is the achievement of efficiency targets. Revenue increases will not ultimately solve the problem and will undermine, probably fatally, the public sector model.

Section 7: Chapter 38
Assessment of Revenue Cap: Profile of Bills

a) Introduction

This chapter outlines the impact on domestic water and sewerage bills as a result of the revenue caps recommended in this Review. There are seven potential scenarios:

- The proposal to establish Scottish Water is approved by the Scottish Parliament,
- East of Scotland Water Authority continues to operate with current proportion of public expenditure,
- East of Scotland Water Authority continues with revised proportion of public expenditure,
- North of Scotland Water Authority continues with current proportion of public expenditure,
- North of Scotland Water Authority continues with revised proportion of public expenditure,
- West of Scotland Water Authority continues with current proportion of public expenditure,
- West of Scotland Water Authority continues with revised proportion of public expenditure.

The chapter closes with a comparison of the outlook for domestic bills under these scenarios with the likely average domestic bills in England and Wales.

b) Assumptions

The revenue caps for all these scenarios are consistent with the public expenditure constraints in the commissioning letter that I received from the Minister. In that letter, the Minister asked that I assume that, in the event that Scottish Water does not proceed, I set revenue caps based on the previous year's split of public expenditure between the three authorities. The implications for domestic prices are shown.

My risk analysis has highlighted, however, that changing the proportions of public expenditure allocated to the three authorities would improve the chances that public expenditure limits were not breached, would smooth the impact of price increases and would lead to lower overall prices in the North. I have therefore recommended to the Minister that he accept this revision to the proportion of public expenditure allocated to each authority.

The public expenditure allocation in each option is shown in Table 38.1.

Table 38.1: Allocation of public expenditure

Year	2002–03	2003–04	2004–05	2005–06
Scottish Water	£314.3m	£299.7m	£299.7m	£299.7m
East	£87.1m	£83.1m	£83.1m	£83.1m
East revised	£77.1m	£75.4m	£40.0m	£49.8m
North	£116.5m	£111.1m	£111.1m	£111.1m
North revised	£136.6m	£118.8m	£145.2m	£133.0m
West	£110.6m	£105.5m	£105.5m	£105.5m
West revised	£100.6m	£105.5m	£114.5m	£116.9m

I have also assumed that the balance between water and sewerage charges moves over this review period to reflect the average position in England and Wales. This is appropriate, as the majority of customers will begin to benefit from full secondary treatment of sewage during this period. This does not impact the customers of East of Scotland Water Authority as this rebalancing between water and sewerage was completed last year. Customers with septic tanks, who are not liable to sewerage charges, will benefit from this rebalancing.

c) Scottish Water

I have outlined indicative changes in the Band D household bills and the average household bill. This has been outlined firstly for Scottish Water, taking the average bills across the three authorities and then on an individual authority level, assuming that harmonisation of charges will be completed in 2004-05.

i) Average bills

Figure 38.1: Scottish Water average domestic bills

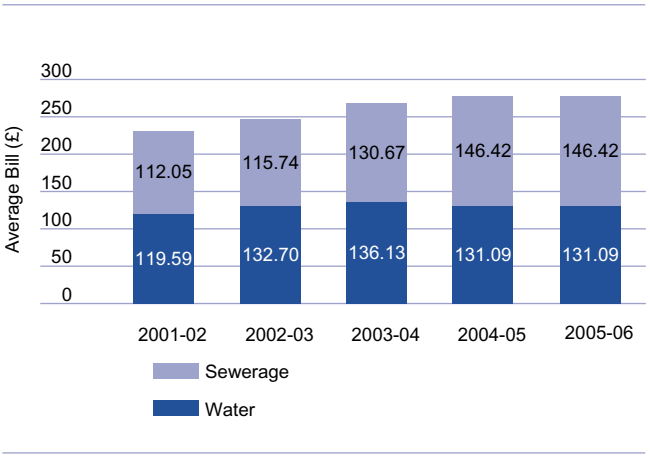
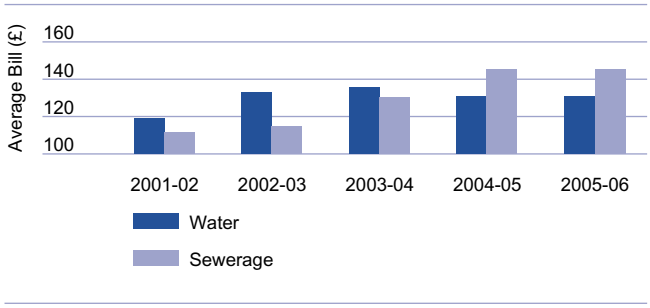


Table 38.2: Percentage increases in average bills: Scottish Water

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	11%	3%	4%	0%	10%
% Increase in average sewerage bill	3%	13%	12%	0%	31%
Total % increase in average bill	7%	7%	4%	0%	20%

Figure 38.2: Scottish Water average bills, water and sewerage split



d) East of Scotland Water Authority: Scottish Water harmonisation

i) Band D bills

Figure 38.3: East of Scotland Water Authority – harmonisation in 2004-05 – Band D bills

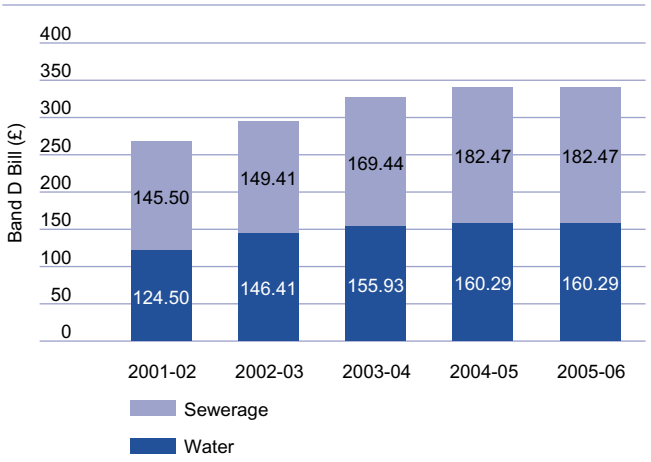


Figure 38.4: East of Scotland Water Authority – harmonisation in 2004-05 – Band D bills, water and sewerage split

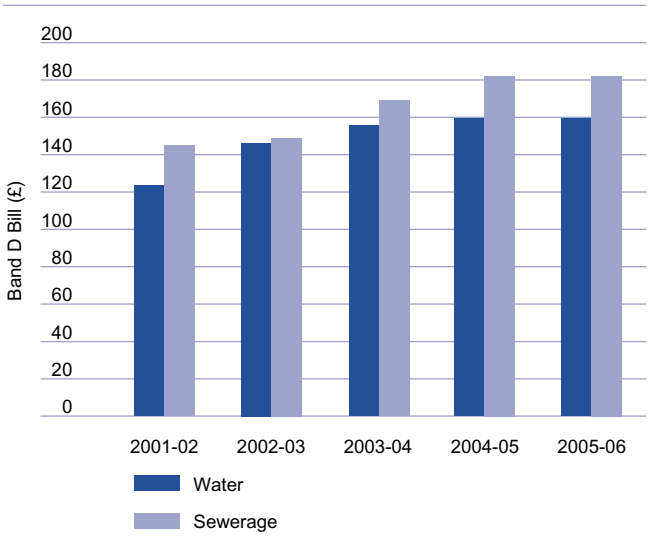


Table 38.3: Percentage increases in Band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	18%	6%	3%	0%	29%
% Increase in Band D sewerage bill	3%	13%	8%	0%	25%
Total % increase in Band D bill	10%	10%	5%	0%	27%

ii) Average bills

Figure 38.5: East of Scotland Water Authority – harmonisation in 2004-05 – average bills

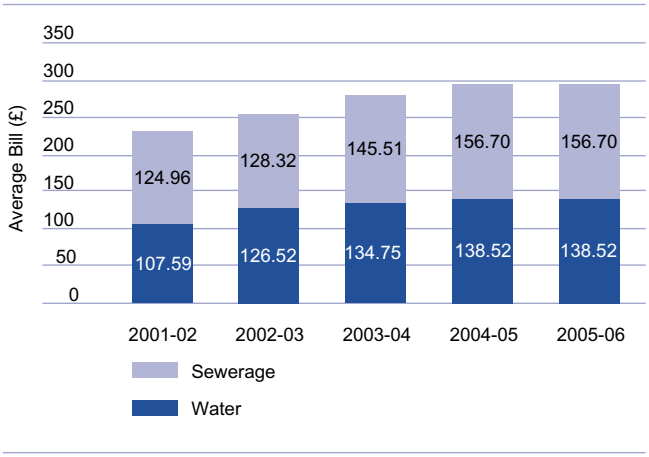
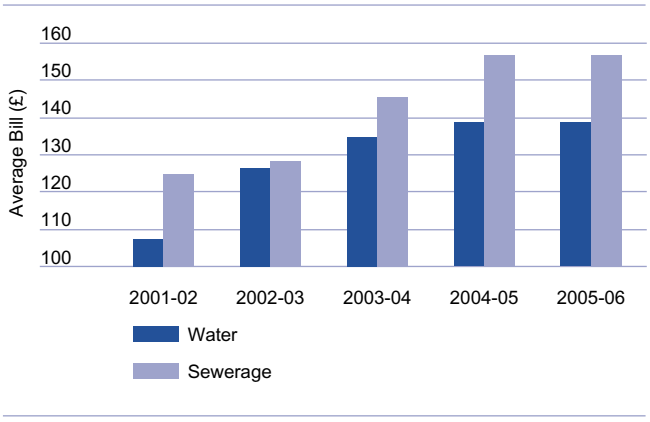


Table 38.4: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	18%	6%	3%	0%	29%
% Increase in average sewerage bill	3%	13%	8%	0%	25%
Total % increase in average bill	10%	10%	5%	0%	27%

Figure 38.6: East of Scotland Water Authority – harmonisation in 2004-05 – average bills, water and sewerage split



e) North of Scotland Water Authority: Scottish Water harmonisation

i) Band D bills

Figure 38.7: North of Scotland Water Authority – harmonisation in 2004-05 – Band D bills

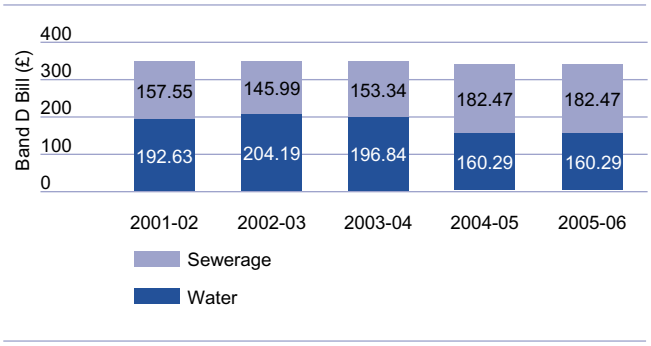
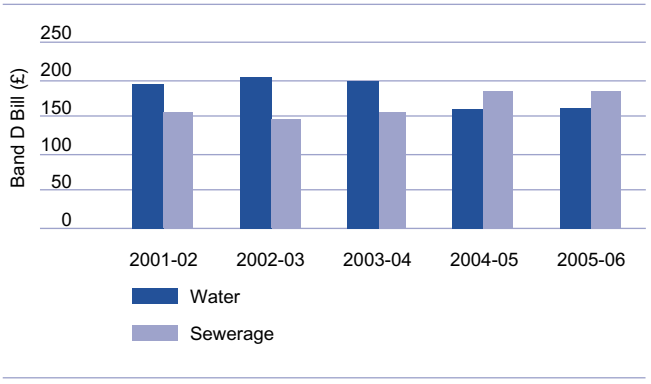


Table 38.5: Percentage increases in Band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	6%	(4%)	(19%)	0%	(17%)
% Increase in Band D sewerage bill	(7%)	5%	19%	0%	16%
Total % increase in Band D bill	0%	0%	(2%)	0%	(2%)

Figure 38.8: North of Scotland Water Authority – harmonisation in 2004-05 – Band D bills, water and sewerage split



i) Average bills

Figure 38.9: North of Scotland Water Authority – harmonisation in 2004-05 – average bills

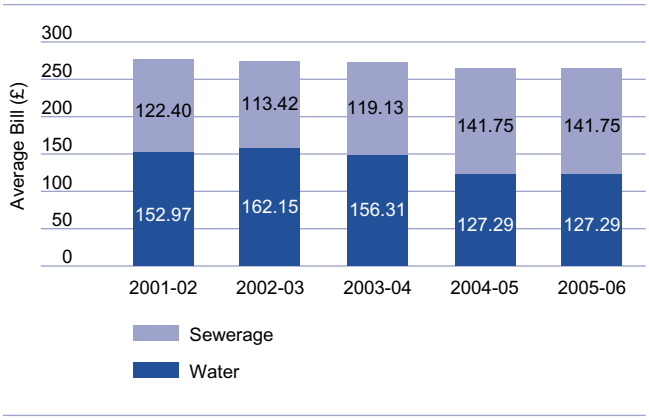
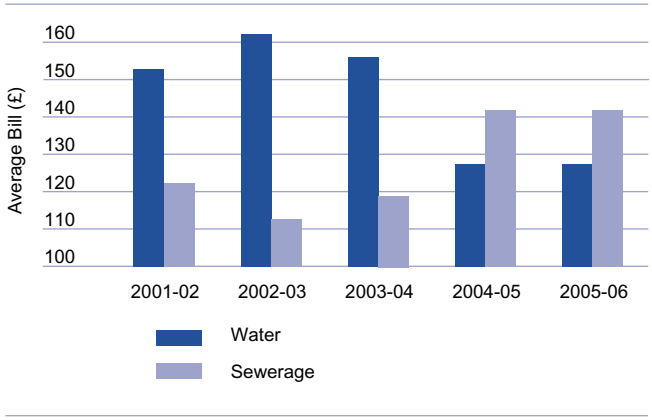


Table 38.6: – Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	6%	(4%)	(19%)	0%	(17%)
% Increase in average sewerage bill	(7%)	5%	19%	0%	16%
Total % increase in average bill	0%	0%	(2%)	0%	(2%)

Figure 38.10: North of Scotland Water Authority – harmonisation in 2004-05 – average bills, water and sewerage split



f) West of Scotland Water Authority: Scottish Water harmonisation

i) Band D bills

Figure 38.11: West of Scotland Water Authority – harmonisation in 2004-05 – Band D bills

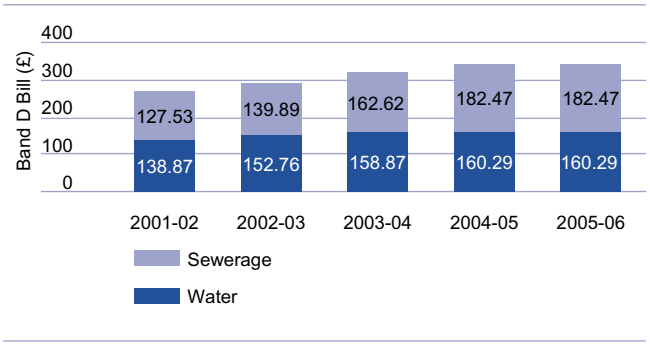
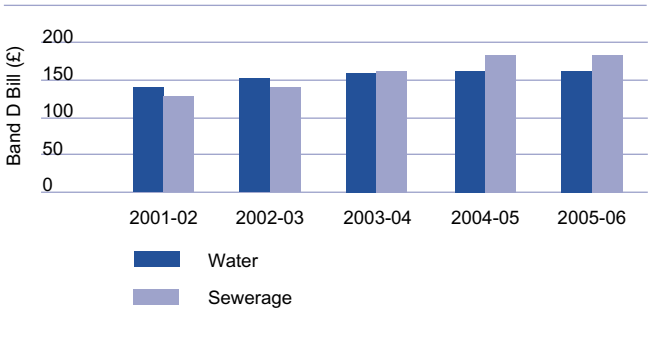


Table 38.7 – Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	10%	4%	1%	0%	15%
% Increase in Band D sewerage bill	10%	16%	12%	0%	43%
Total % increase in Band D bill	10%	10%	7%	0%	29%

Figure 38.12: West of Scotland Water Authority – harmonisation in 2004-05 – Band D bills, water and sewerage split



ii) Average bills

Figure 38.13: West of Scotland Water Authority – harmonisation in 2004-05 – average bills

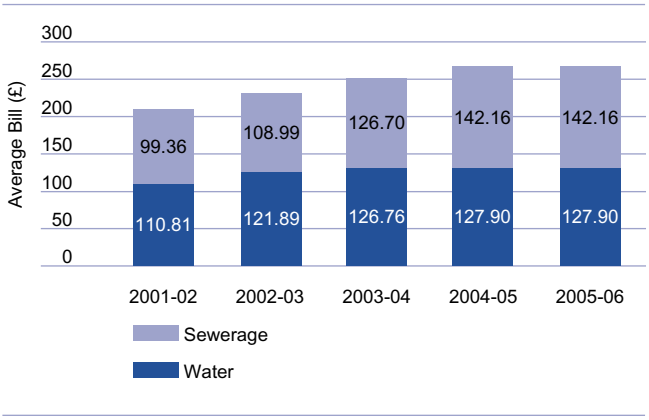
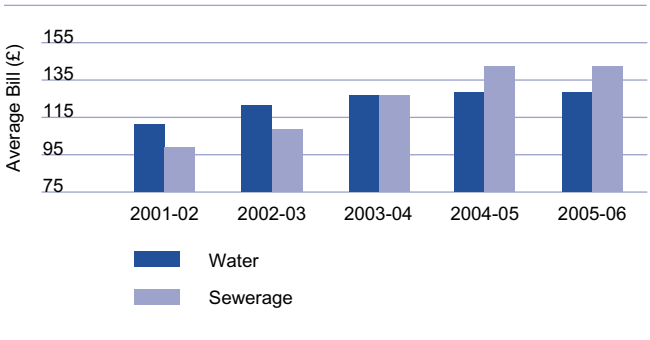


Table 38.8: – Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	10%	4%	1%	0%	15%
% Increase in average sewerage bill	10%	16%	12%	0%	43%
Total % increase in average bill	10%	10%	7%	0%	28%

Figure 38.14: West of Scotland Water Authority – harmonisation in 2004-05 – average bills, water and sewerage split



g) East of Scotland Water Authority (allocation of public expenditure in line with commissioning letter)

The following section gives analysis of the situation should the merger of the three authorities not come to fruition. For the East and North, two possible scenarios have been discussed. One scenario allocates public expenditure in line with the commissioning letter for the Review. The other changes the proportions of public expenditure to improve the chances that public expenditure limits are not breached, to smooth the impact of price increases and to reduce overall prices in the North.

i) Band D Bills

Figure 38.15: East of Scotland Water Authority – original funding allocation – band D bills

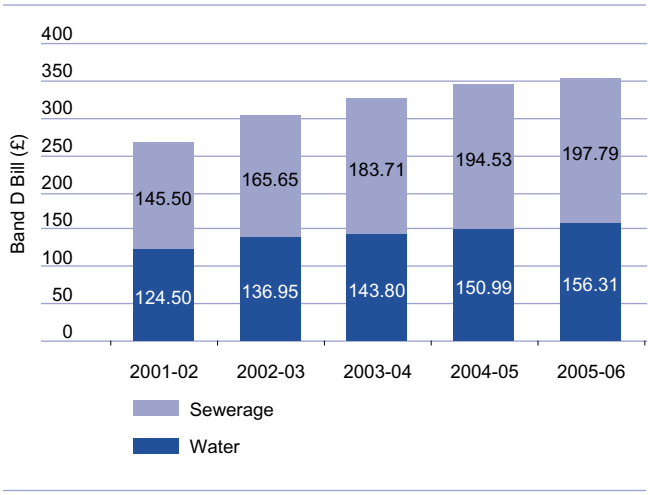


Figure 38.16: East of Scotland Water Authority – original funding allocation – band D bills, water and sewerage split

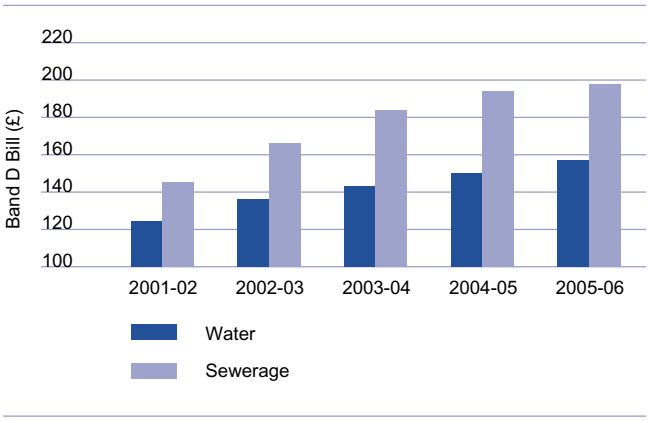


Table 38.9:– Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	10%	5%	5%	4%	26%
% Increase in Band D sewerage bill	14%	11%	6%	2%	36%
Total % increase in Band D bill	12%	8%	5%	2%	31%

ii) Average bills

Figure 38.17: East of Scotland Water Authority – original funding allocation – average bills

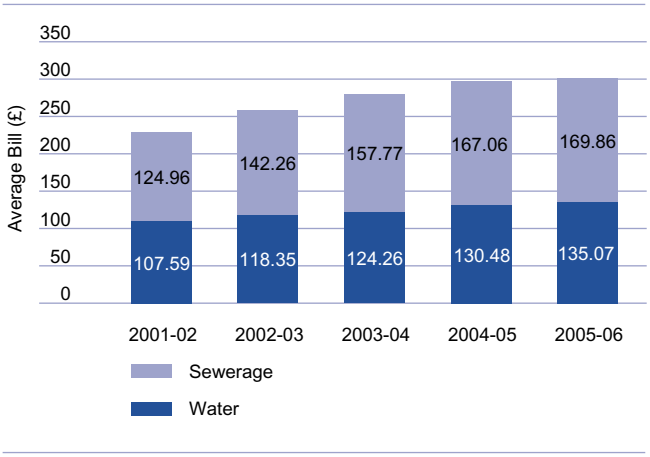
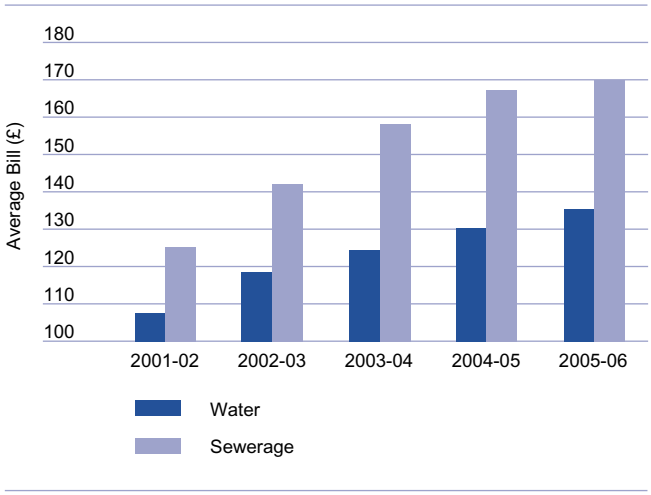


Table 38.10: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	10%	5%	5%	4%	26%
% Increase in average sewerage bill	14%	11%	6%	2%	36%
Total % increase in average bill	12%	8%	5%	2%	31%

Figure 38.18: East of Scotland Water Authority – original funding allocation – average bills, water and sewerage split



h) East of Scotland Water Authority (revised public expenditure allocation)

i) Band D bills

Figure 38.19 East of Scotland Water Authority – revised funding allocation – band D bills

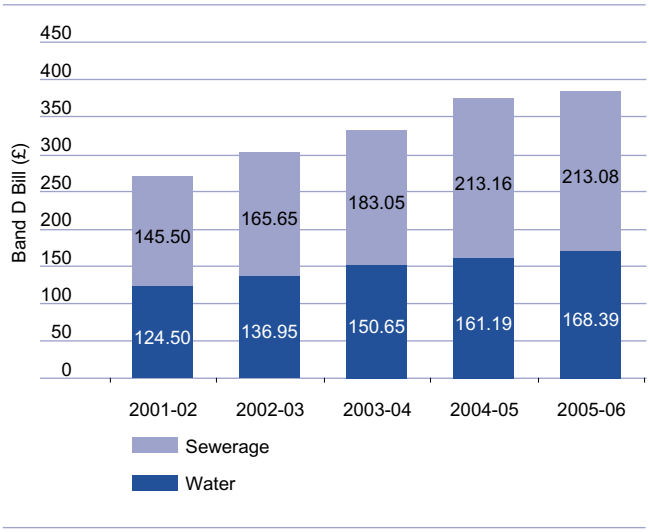
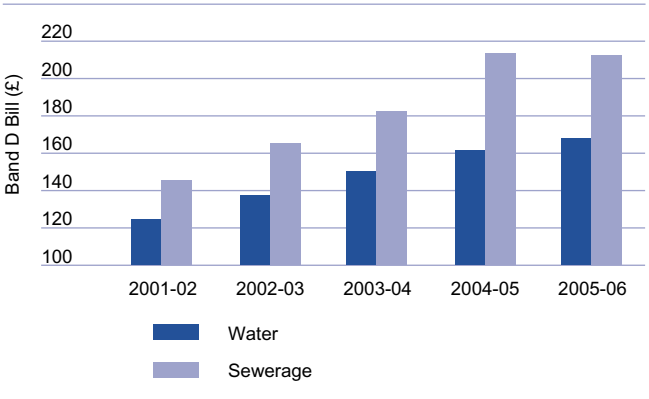


Table 38.11: Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	10%	10%	7%	4%	35%
% Increase in Band D sewerage bill	14%	11%	16%	0%	46%
Total % increase in Band D bill	12%	10%	12%	2%	41%

Figure 38.20: East of Scotland Water Authority – revised funding allocation – band D bills, water and sewerage split



ii) Average bills

Figure 38.21: East of Scotland Water Authority – revised funding allocation – average bills

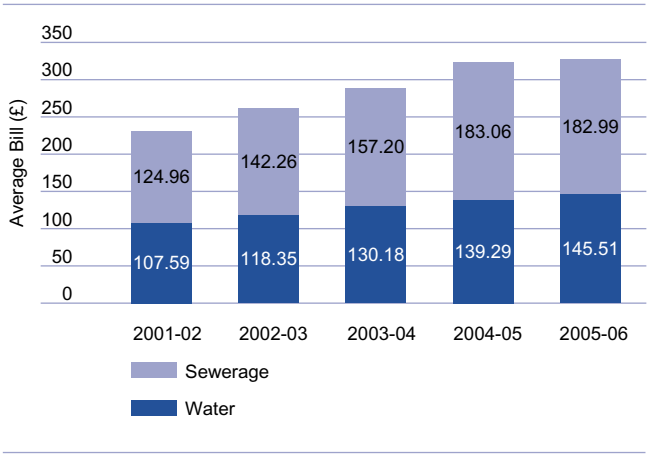
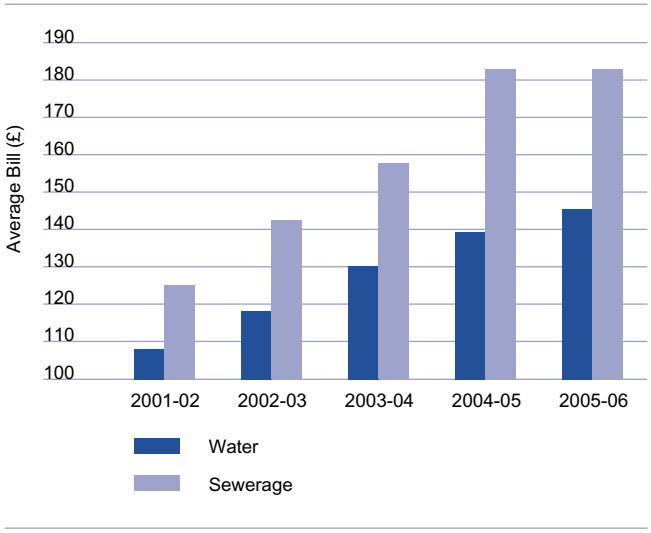


Table 38.12: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	10%	10%	7%	4%	35%
% Increase in average sewerage bill	14%	11%	16%	0%	46%
Total % increase in average bill	12%	10%	12%	2%	41%

Figure 38.22: East of Scotland Water Authority – revised funding allocation – average bills, water and sewerage split



i) North of Scotland Water Authority (allocation of public expenditure in line with commissioning letter)

i) Band D bills

Figure 38.23: North of Scotland Water Authority – original funding allocation – band D bills

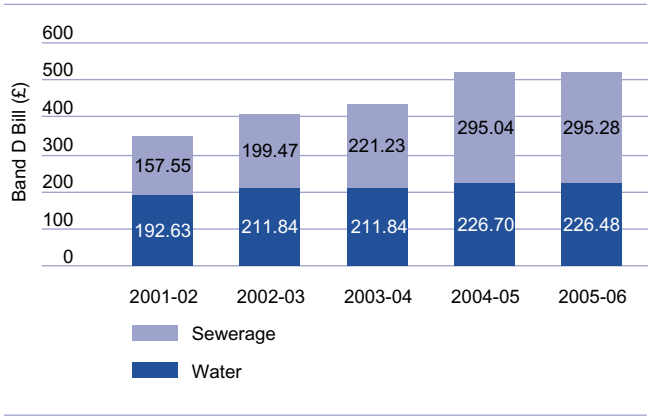
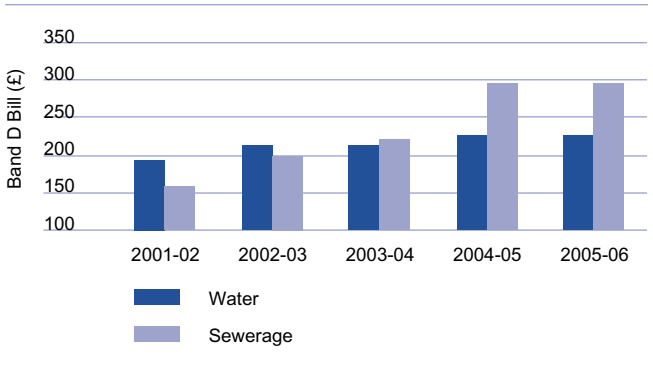


Table 38.13: Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	10%	0%	7%	0%	18%
% Increase in Band D sewerage bill	27%	11%	33%	0%	87%
Total % increase in Band D bill	17%	5%	20%	0%	49%

Figure 38.24: North of Scotland Water Authority – original funding allocation – band D bills, water and sewerage split



ii) Average bills

Figure 38.25: North of Scotland Water Authority – original funding allocation – average bills

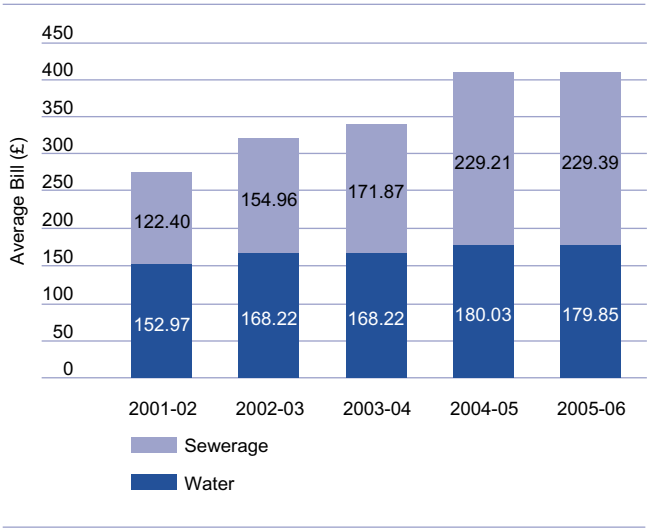
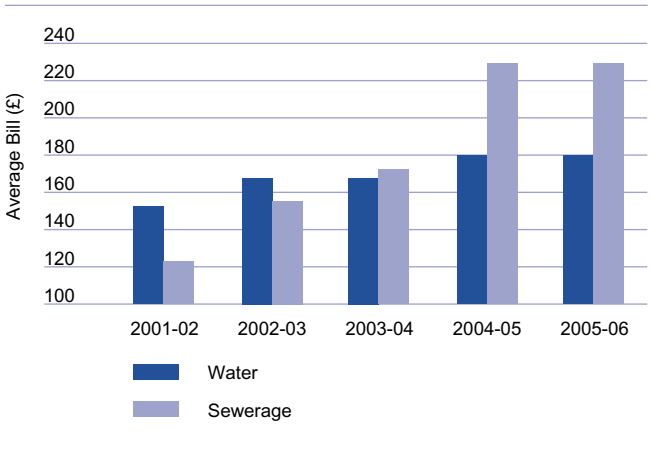


Table 38.14: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	10%	0%	7%	0%	18%
% Increase in average sewerage bill	27%	11%	33%	0%	87%
Total % increase in average bill	17%	5%	20%	0%	49%

Figure 38.26: North of Scotland Water Authority – original funding allocation – average bills, water and sewerage split



j) North of Scotland Water Authority (revised public expenditure allocation)

i) Band D bills

Figure 38.27: North of Scotland Water Authority – revised funding allocation – band D bills

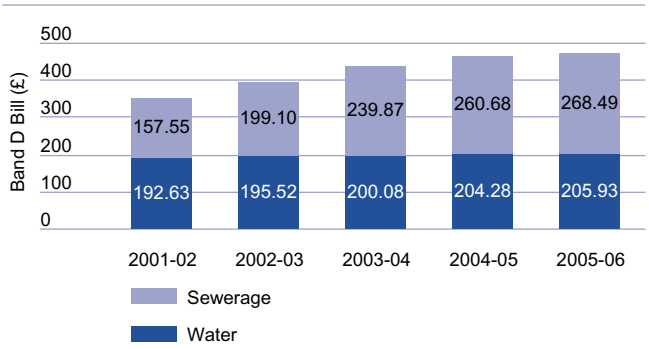
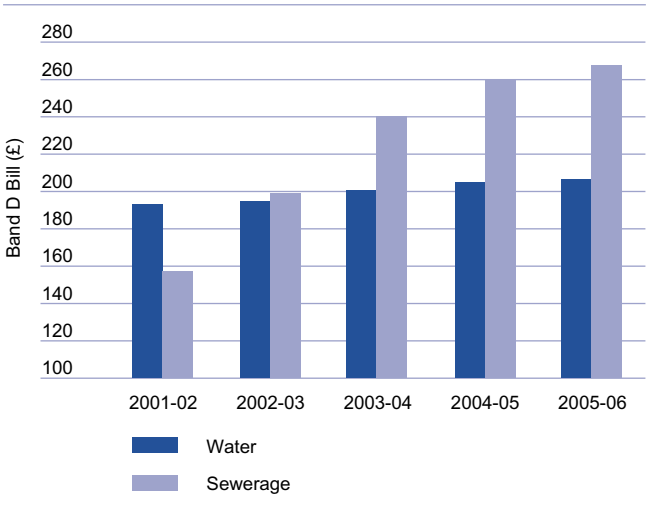


Table 38.15: Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	1%	2%	2%	1%	7%
% Increase in Band D sewerage bill	26%	20%	9%	3%	70%
Total % increase in Band D bill	13%	11%	6%	2%	35%

Figure 38.28: North of Scotland Water Authority – revised funding allocation – band D bills, water and sewerage split



ii) Average bills

Figure 38.29: North of Scotland Water Authority – revised funding allocation – average bills

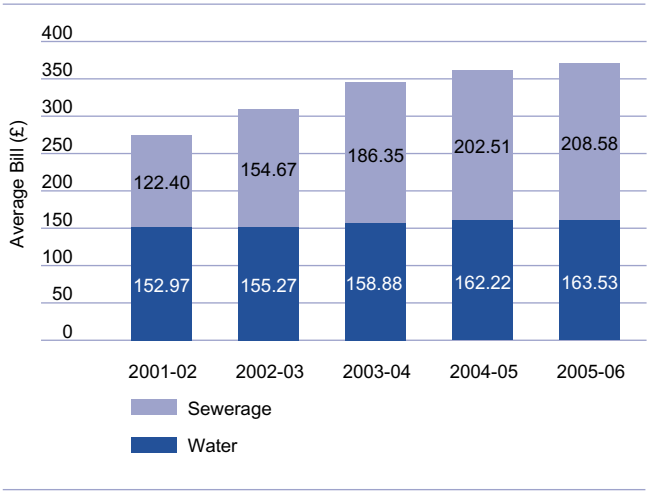
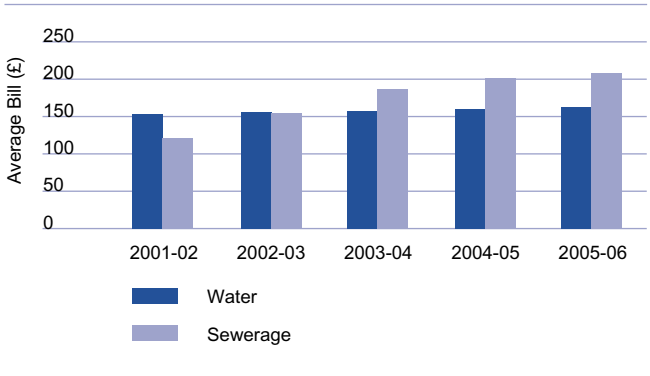


Table 38.16: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	1%	2%	2%	1%	7%
% Increase in average sewerage bill	26%	20%	9%	3%	70%
Total % increase in average bill	13%	11%	6%	2%	35%

Figure 38.30: North of Scotland Water Authority – revised funding allocation – average bills, water and sewerage split



k) West of Scotland Water Authority (allocation of public expenditure in line with commissioning letter)

i) Band D bills

Figure 38.31: West of Scotland Water Authority – original funding allocation – band D bills

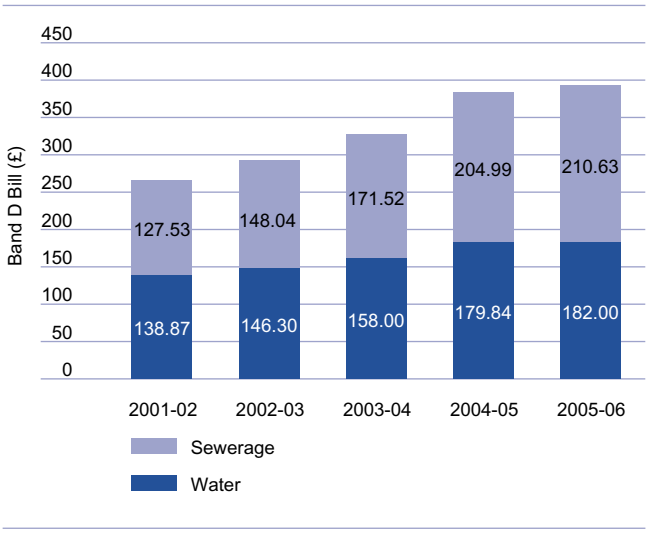
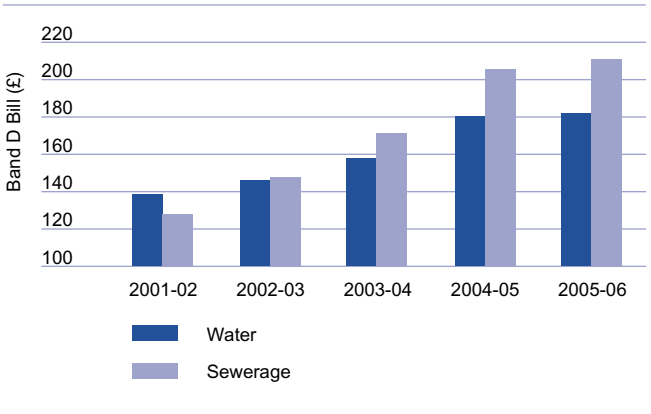


Table 38.17: Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	5%	8%	14%	1%	31%
% Increase in Band D sewerage bill	16%	16%	20%	3%	65%
Total % increase in Band D bill	10%	12%	17%	2%	47%

Figure 38.32: West of Scotland Water Authority – original funding allocation – band D bills, water and sewerage split



ii) Average bills

Figure 38.33: West of Scotland Water Authority – original funding allocation – average bills

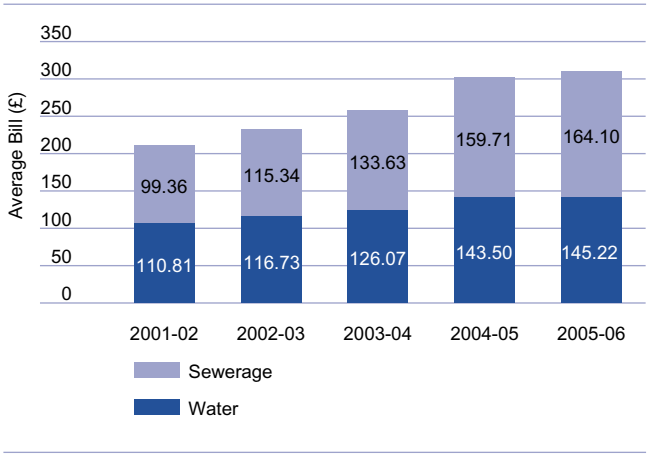
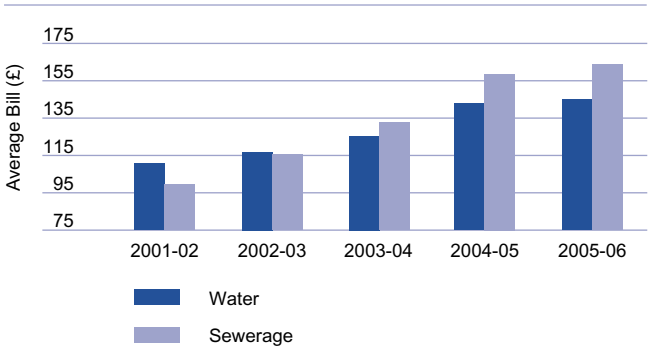


Table 38.18: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average water bill	5%	8%	14%	1%	31%
% Increase in average sewerage bill	16%	16%	20%	3%	65%
Total % increase in average bill	10%	12%	17%	2%	47%

Figure 38.34: West of Scotland Water Authority- original funding allocation – average bills, water and sewerage split



l) West of Scotland Water Authority (revised public expenditure allocation)

i) Band D Bills

Figure 38.35: West of Scotland Water Authority — revised funding allocation — band D bills

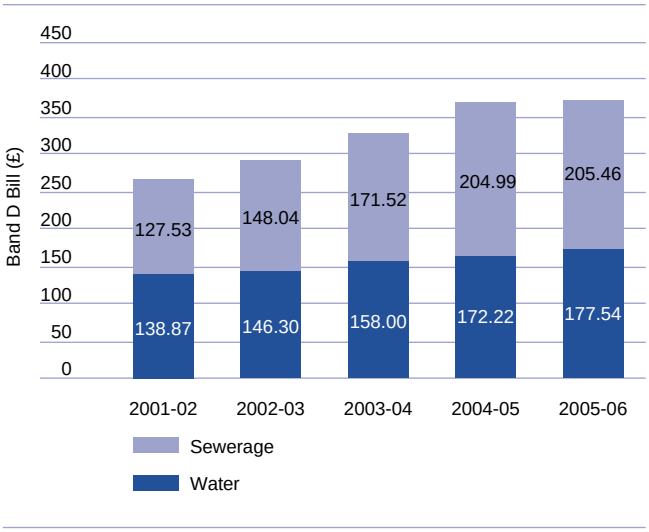
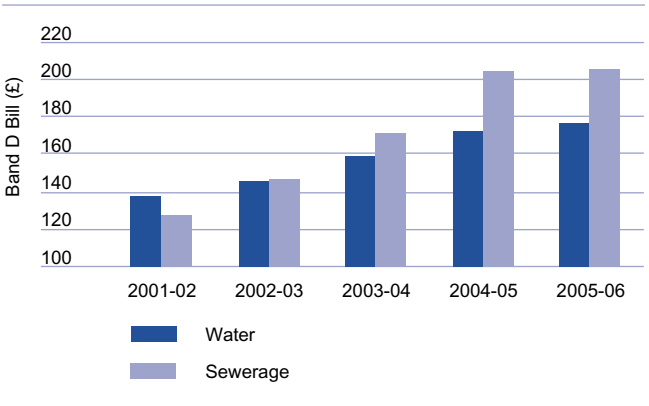


Table 38.19: Percentage increases in band D bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in Band D water bill	5%	8%	9%	3%	28%
% Increase in Band D sewerage bill	16%	16%	20%	0%	61%
Total % increase in Band D bill	10%	12%	14%	2%	44%

Figure 38.36: West of Scotland Water Authority – revised funding allocation – band D bills, water and sewerage



ii) Average bills

Figure 38.37: West of Scotland Water Authority – revised funding allocation – average bills

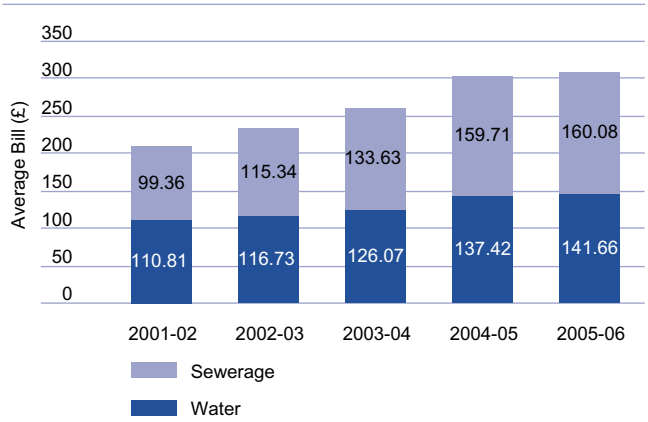
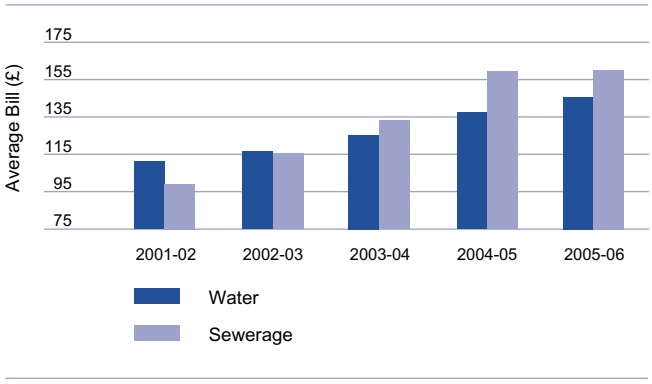


Table 38.20: Percentage increases in average bills

	2002–03	2003–04	2004–05	2005–06	2001–02 to 2005–06
% Increase in average Water Bill	5%	8%	9%	3%	28%
% Increase in average Sewerage Bill	16%	16%	20%	0%	61%
Total % Increase in average Bill	10%	12%	14%	2%	44%

Figure 38.38: West of Scotland Water Authority – revised funding allocation – average bills, water and sewerage split



m) Comparisons with England and Wales

Figure 38.39: Average domestic water bills in 2005-06 versus England and Wales

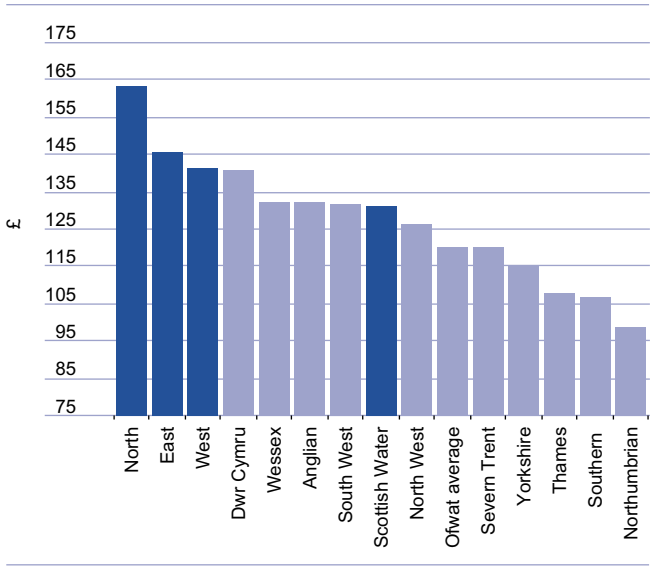


Figure 38.40: Average sewerage bills in 2005-06 versus England and Wales

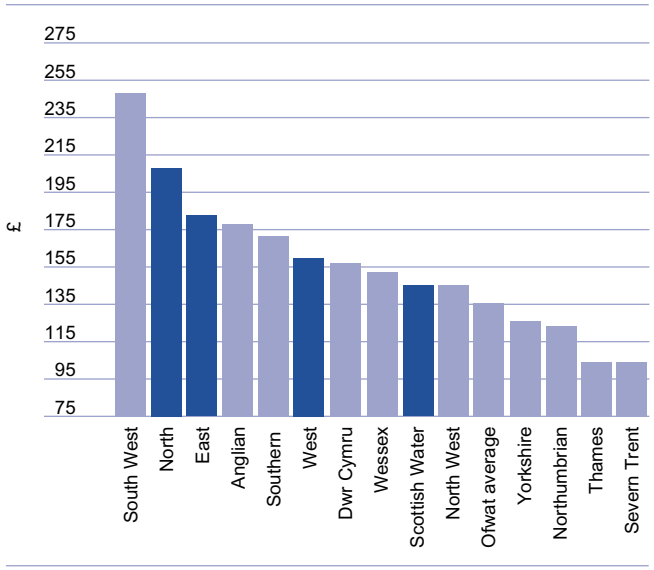


Figure 38.41: Average domestic water and sewerage bills in 2005-06 versus England and Wales

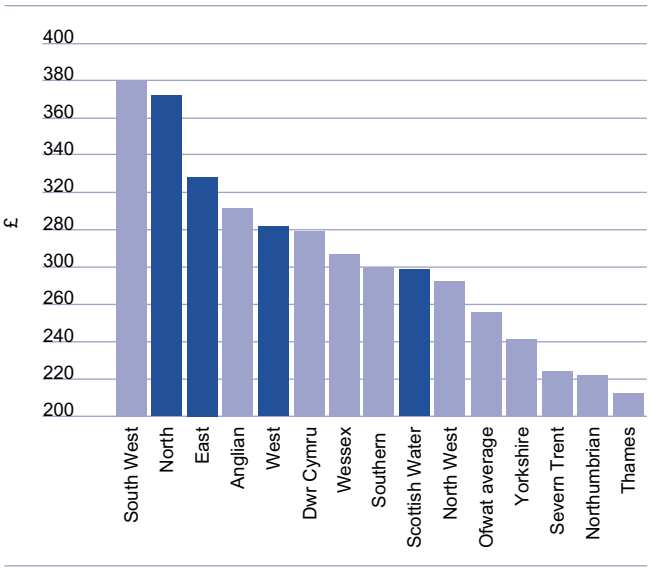


Figure 38.42: Comparison of average water bills with England and Wales

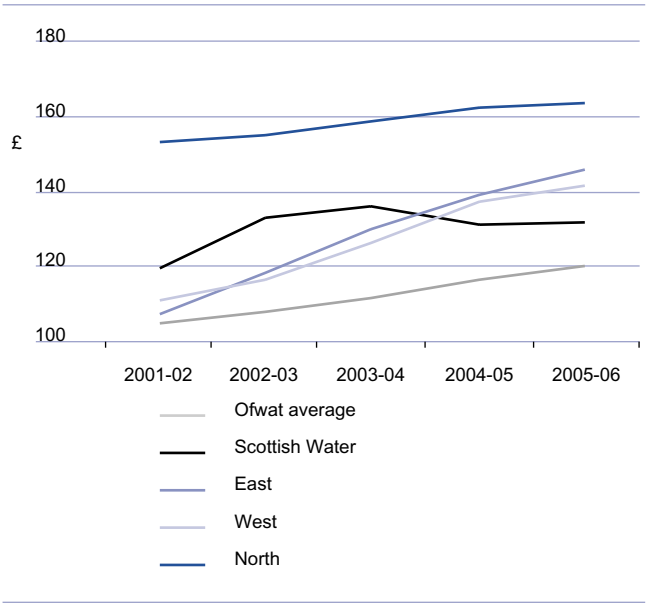


Figure 38.43: Comparison of average sewerage bills with England and Wales

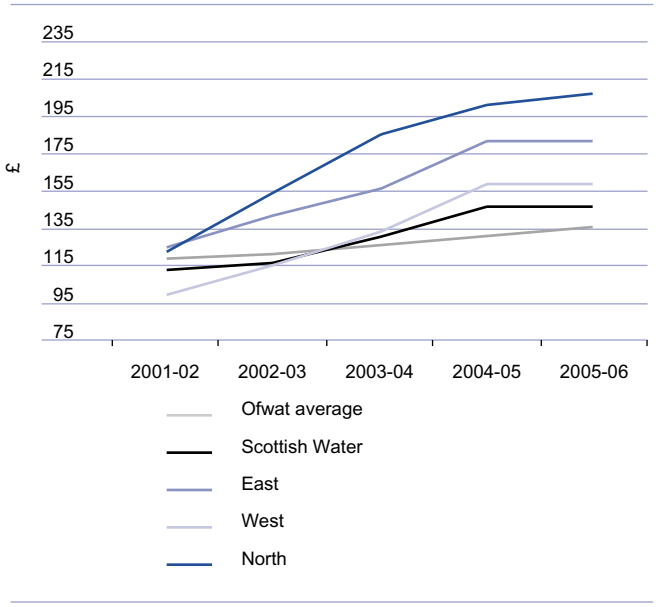
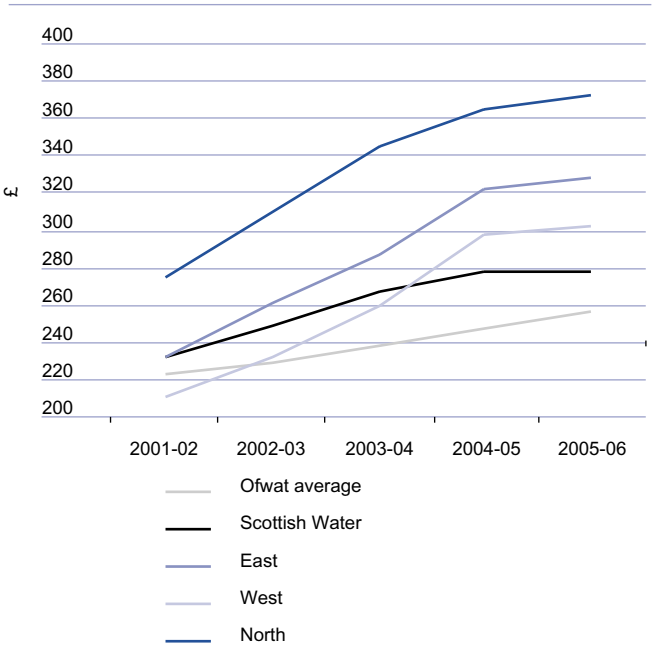


Figure 38.44: Comparison of average water and sewerage bills with England and Wales



n) Conclusions

The proposed merger will benefit all customers in Scotland, not just those currently served by the North of Scotland Water Authority. My analysis shows that bills in the North will be 2% lower in 2005-06 than they are in 2001-02. The price for sewerage will increase but this will be more than offset by a decrease in water charges.

Prices in the East and West will increase by 27% and 29% for the combined water and sewerage services. In both cases there will be an increase to both the water and sewerage charge (in the East 29% and 25% respectively, and in the West 15% and 43%). The increase in sewerage charges in the West will be most marked.

In the event that the Scottish Parliament does not approve the Scottish Water initiative, the implications for customers are serious. There will be further significant increases for customers of the North of Scotland Water Authority (7% and 70% for water and sewerage respectively) even if the Minister accepts my recommendation to reallocate public expenditure. There will also be larger increases in the East and the West. Under the three authority scenario the increase over the 2002-06 period would be 41% in the East versus the proposed 27% in the single authority scenario. Customers of the West of Scotland Water Authority would face a 44% increase rather than an increase of 29% in the single authority scenario.

Under the single authority scenario, average bills in Scotland will be right in the middle of the ten water and sewerage companies in England and Wales. Several regions (e.g. Anglian, Wales), with not dissimilar challenges, will pay more.

Under the three authority option, bills are likely only to be higher in Southwest England than in Scotland.

Section 7: Chapter 39
Assessment of Revenue Cap: Outlook for 2006 to 2010

a) Introduction

The Scottish water industry is entering a critical time. In this chapter, I outline the prospects for customer charges at the next Strategic Review of Charges, which is likely to cover the years 2006-10.

Prices have increased dramatically in recent years. These increases would have been necessary even if the efficiency of the industry had been addressed much earlier, however, a proportion of the charges paid by customers has been consumed by inefficiency. This has resulted in there being less money available to improve the environment or to improve the quality of service provided to customers. This Review highlights a number of issues that need to be addressed urgently. If the industry addresses the gaps in its knowledge about costs, if it becomes efficient and if it sets tariffs that broadly reflect costs, the outlook for customers is bright. The price of failure will be, however, very considerable.

Decisions taken now will impact on customers throughout Scotland. If Scottish Water is not approved by Parliament, the consequences for charge payers in the North of Scotland Water Authority area are serious. There are likely to be significant issues of affordability. Customers in the East and West areas will also be adversely affected. Not only will the £40 million per year, which I have conservatively estimated as the potential efficiencies from the merger, be lost, but the likelihood of the three authorities achieving their efficiency targets will also be much reduced. In this Review, I have estimated that the total costs to customers of not approving Scottish Water are in excess of £400 million over the period 2002-05 or £170 million per year by 2005-06. To put it another way, the potential impact on customer charges would be £80 on an average domestic bill, by 2005-06.

This chapter will outline the prospects for the next Review period in both scenarios: that Scottish Water is created and that the existing three authorities continue to operate.

By 2006, I believe that Scottish Water could have significantly narrowed the gap in operating cost and capital efficiency between the Scottish industry and the industry in England and Wales. However, it appears likely that the industry south of the border will continue to improve, albeit at a slower rate than in the past ten years, and this is likely to mean that there will be significant further scope for efficiency in the next review period. The level of prices required under the three authority model would become increasingly difficult to justify in the next regulatory period.

b) Prospects for prices

i) Scottish Water scenario

The prospects for prices in the period from 2006 to 2010 are quite bright. I believe that it could be possible to have revenue caps for Scottish Water at 1% below the annual rate of inflation. Revenue caps for each of the existing three authorities could also be below the rate of inflation. I would estimate that at least RPI-0.5% would be possible for East of Scotland Water Authority and West of Scotland Water Authority, but a further increase of around RPI+0.5% would be needed for North of Scotland Water Authority over the period.

These indicative revenue caps depend to a critical extent upon the progress of the industry in closing the efficiency gap that exists between the industries in Scotland and England. Obviously if there is more progress than I have assumed in my Review for the current period, then the outlook could be even better. My risk analysis described in Chapters 33 and 37 suggests that there is a fairly high probability that the targets could be beaten. However, if the industry does not take steps to become efficient, even the creation of the proposed Scottish Water will not help. There is a very material risk that prices would have to increase sharply and that even more public expenditure would have to be allocated to the industry.

The range in potential outcomes is from a possible decrease of 13% in prices if Scottish Water does better than my expectations, to an increase of some 22% in the event that the organisation fails to realise the potential for change. Figure 39.1 illustrates the potential revenue requirements. The resulting Band D household charge is shown in Figure 39.2.

ii) Three authorities scenario

The three authorities model will see prices increase to a higher level for all customers in Scotland. In order for there to be a reasonable degree of certainty that public expenditure constraints would not be breached in the next regulatory period, there may have to be an increase of 20%. Figure 39.3 shows the revenue requirements, assuming that the authorities close half the efficiency gap by 2005-06. The resulting Band D household charge is shown in Figure 39.4.

Revenue caps and the profile bills Scottish Water and the three authorities

Figure 39.1: Scottish Water revenue requirements

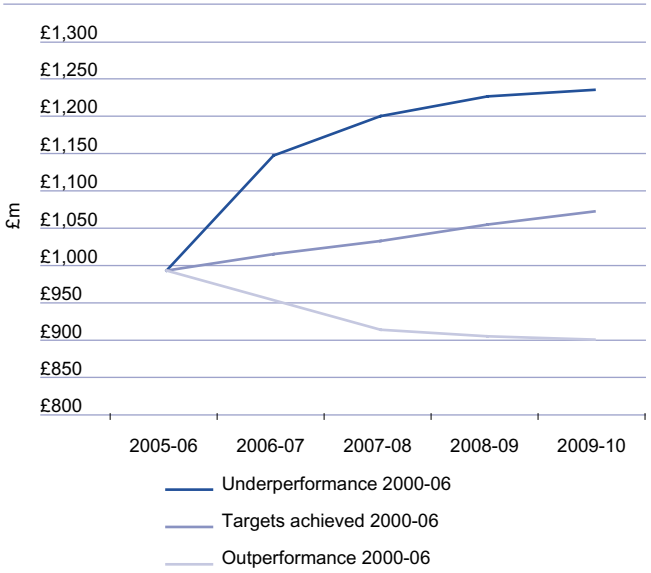


Figure 39.2: Scottish Water equivalent Band D charge

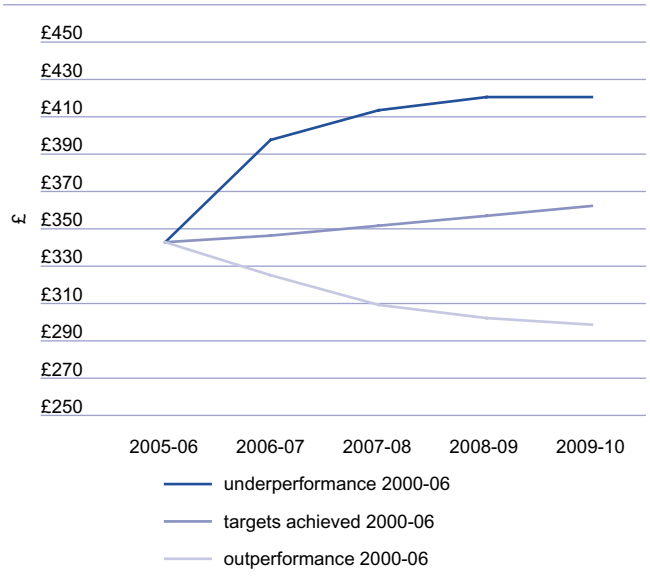


Figure 39.3: Projected water authority revenue requirements

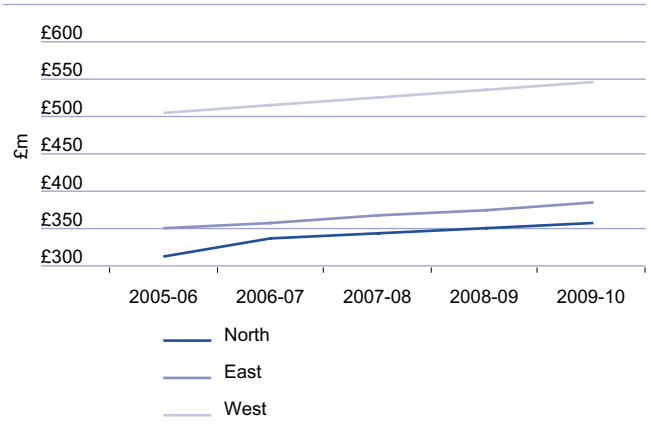


Figure 39.4: Water authority equivalent Band D charge

c) Prospects for investment

The Quality and Standards consultation document, issued by the Scottish Executive, highlighted the need for continuing investment in the water industry. The depreciation charge for the water industry will more closely reflect the expected life of assets, but it may still need to be increased. It is clear that the industry will need to spend at least the long run normative charge on the maintenance and refurbishment of the underground infrastructure. Table 39.1 outlines the minimum required investment for base maintenance.

In addition to this essential investment, a number of quality improvements are likely to be required. The main drivers of this investment are likely to be:

- the Water Framework Directive,

Table 39.1: Minimum required investment for base maintenance

	2002–06 average	2006–07	2007–08	2008–09	2009–10
Depreciation	£203.8m	£204.4m	£199.0m	£200.1m	£200.2m
Infrastructure renewals charge	£112.9m	£165.3m	£163.0m	£162.4 m	£162.1m
Total base investment	£316.7m	£369.7m	£362.0m	£362.5m	£362.3m

- lead standards,
- revisions to the Bathing Waters Directive,
- better management of drainage and sewerage systems.

It is unlikely that the level of investment in the next regulatory period will be less than in the current period and there is a chance that it could have to increase further. My estimates of revenue caps assume that there would be no need for an increase in spending.

d) Challenges ahead

There are considerable challenges during the current regulatory period. These include the delivery of much needed efficiency targets and an increased investment programme. Should Parliament approve Scottish Water, there will also be the challenge of merging the three authorities.

The challenges in the next review period (i.e. 2006-10) will be similar in some ways. There will be an on-going need for efficiency and the current large investment programme will continue. The focus of the investment programme will have changed slightly and there will be a greater need to understand the condition and performance of the underground infrastructure, which ensures 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 will take time to collect and interpret and it is important that the management of the industry allocate sufficient resources to the collection of this information now. This will be a vital input to the Quality and Standards process for the next regulatory period.

There will also be some new challenges. The Scottish industry will have to learn to respond effectively in an environment where the customer has a choice of supplier. This will lead to new challenges in customer service. The network and treatment business within the authority will also have to learn to deal with a customer other than the retail arm of the authority. It will have to develop systems which ensure that it does not in any way favour its own retail arm. This may be at times a difficult challenge, but one that will have to be met.

e) More efficiency

My expectation is that the proposed Scottish Water will close 80% of the gap between its own performance and that of the comparator companies in England and Wales. It is reasonable, however, to expect that the comparator companies will beat the efficiency targets, set for them by Ofwat (indeed, it is intended that they are beaten). Table 39.2 illustrates the likely efficiency gap between Scottish Water and the comparator companies in 2006.

I would not expect the three authorities to do so well. My expectation is that they would succeed in closing only 50% of the gap between their current position and the comparator

Table 39.2: Analysis of remaining operating expenditure efficiency gap in 2005–06

Out performance of Ofwat target by plcs/Gap closure	% cost reduction needed to match comparator companies					
	60%	70%	80%	90%	100%	110%
0%	28%	23%	17%	9%	0%	(11)%
5%	33%	28%	21%	14%	5%	(5)%
10%	37%	32%	27%	20%	11%	0%
15%	42%	38%	32%	26%	18%	7%
20%	47%	43%	38%	33%	25%	15%

companies. The likely efficiency gap in 2006 would be as set out in Table 39.3

The largest single threat to the survival of the water industry in the public sector is its inefficiency. This will undermine customers' faith in the authority and could significantly worsen the competitive position of the industry. Closing this gap is therefore of the highest priority.

Table 39.3: Remaining operating expenditure efficiency gap in 2005–06, assuming 50% closure of gap

Outperformance of Ofwat target by plcs	% cost reduction needed to match comparator companies
0%	32%
5%	38%
10%	41%
15%	45%
20%	50%

f) Retail competition

Retail competition is likely to offer a choice to most customers in Scotland by the next regulatory period. 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 the proposed Scottish Water. If customer service is improved and if tariffs are made broadly cost reflective then the impact on the total revenues of Scottish Water will be minimal. The key success factor is reducing costs and moving the organisation significantly towards the efficiency frontier.

g) Corporate governance and incentives

The future operating environment for the Scottish water industry will be quite different. Competition will be a reality and there will be a clear need for management to push hard to deliver the savings that customers will require. This will be a real test for a publicly owned organisation. This will be the first time that a public sector organisation has had to learn to compete directly in a mass market. This differs even from the Post Office because the competitors are likely to be at least as well resourced and may actually be able to offer the customer more services.

There will be clear implications for the governance of this organisation. The best available management will have to be attracted and retained. This is likely to require flexibility in remuneration and incentives. It will also be vital however that these incentives are properly transparent and that the criteria of successful performance are clear to all. There are clear lessons from the public consultation in Wales on the incentives for directors of the Not For Profit Welsh Water (Glas Cymru). The incentives need to be clearly aligned with the interests of customers.

It will also be important to ensure that there continues to be a strong challenging board that will hold management to account directly.

h) Conclusion

I believe that the recommendations of the current Strategic Review of Charges will ensure that the outlook for customers improves significantly. It should be possible to meet customer expectations across a range of parameters.

If Parliament approves Scottish Water, it is likely that price increases should be kept below the rate of inflation in the period 2006-10. It is possible that price increases could similarly be kept below the rate of inflation for the three authorities, but from a much higher base, and there is a possibility that further increases could be required.

The current level of spending is unlikely to decrease and there is a possibility that a further increase may be required. This will deliver significant environmental and public health benefits to customers. An important example is the reduction in the amount of lead permitted in our water.

It is likely that there will be a real choice for most customers in Scotland during the next regulatory period.

I expect that the improvements in customer service, which have marked the period since 1996, will continue. The pressure of retail competition and the need to provide value for money to customers will ensure that customers will see real improvements.